This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Y4.B22³: En 2³

ENERGY CONSERVATION ACT OF 1976

STANFORD
LIBRARIES

94-2

HEARING

BEFORE THE

COMMITTEE ON
BANKING, HOUSING AND URBAN AFFAIRS
UNITED STATES SENATE

NINETY-FOURTH CONGRESS

SECOND SESSION

ON

S. 2932

TO MINIMIZE THE USE OF ENERGY IN RESIDENTIAL HOUSING, COMMERCIAL AND PUBLIC BUILDINGS, AND INDUSTRIAL PLANTS THROUGH FEDERALLY SUPPORTED STATE ENERGY CONSERVATION IMPLEMENTATION PROGRAMS

S. 3424

TO MINIMIZE THE USE OF ENERGY IN HOUSING, NONRESIDENTIAL BUILDINGS, AND INDUSTRIAL PLANTS THROUGH STATE ENERGY CONSERVATION IMPLEMENTATION PROGRAMS AND FEDERAL FINANCIAL INCENTIVES AND ASSISTANCE, AND FOR OTHER PURPOSES

MAY 19, 1976

Printed for the use of the
Committee on Banking, Housing and Urban Affairs

STANFORD UNIVERSITY
SEP 1976
GOVERNMENT DEPARTMENT

U.S. GOVERNMENT PRINTING OFFICE
73-230 O WASHINGTON : 1976

COMMITTEE ON BANKING, HOUSING AND URBAN AFFAIRS

WILLIAM PROXMIRE, Wisconsin, *Chairman*

JOHN SPARKMAN, Alabama
HARRISON A. WILLIAMS, Jr., New Jersey
THOMAS J. McINTYRE, New Hampshire
ALAN CRANSTON, California
ADLAI E. STEVENSON, Illinois
JOSEPH R. BIDEN, Jr., Delaware
ROBERT MORGAN, North Carolina

JOHN TOWER, Texas
EDWARD W. BROOKE, Massachusetts
BOB PACKWOOD, Oregon
JESSE HELMS, North Carolina
JAKE GARN, Utah

Kenneth A. McLean, *Staff Director*
Anthony T. Cluff, *Minority Staff Director*
Carl A. S. Coan, *Staff Director, Subcommittee on Housing and Urban Affairs*
Jeremiah S. Buckley, *Minority Counsel, Subcommittee on Housing and Urban Affairs*
Robert E. Malakoff, *Professional Staff Member*
Thomas A. Brooks, *Minority Assistant Counsel*

CONTENTS

Page

S. 2932 2

S. 3424 6

List of Witnesses

Charles J. Orlebeke, Assistant Secretary for Policy Development and Research, Department of Housing and Urban Development 14

John A. Hill, Deputy Administrator, Federal Energy Administration 20

John T. Wettach, Assistant Administrator for Finance and Investment, Small Business Administration 26

Carl L. Bradley, vice president and chairman of the Energy Committee, American Institute of Architects; accompanied by John P. Eberhard, president, AIA Research Corp 44

Additional Statements and Data

Letter from John A. Hill, Deputy Administrator, Federal Energy Administration, with answers to questions raised at hearing 34

Statement of General Electric Co 57

Letter from Phil Gasteyer, staff vice president-associate director, U.S. League of Savings Associations 72

ENERGY CONSERVATION ACT OF 1976

WEDNESDAY, MAY 19, 1976

U.S. SENATE,
COMMITTEE ON BANKING, HOUSING AND URBAN AFFAIRS,
Washington, D.C.

The committee met at 10, pursuant to notice, in room 5302, Dirksen Senate Office Building, Senator William Proxmire (chairman of the committee) presiding.

Present: Senators Proxmire, McIntyre, and Garn.

Senator GARN. The hearing will come to order.

Senator Proxmire is delayed on the floor and will be here in a few minutes, but in the interest of time we will go ahead, and I would like to ask Charles Orlebeke, John Hill, and John Wettach to come up as a panel, and the chairman has an opening statement that I would ask be put in the record in his absence.

[Chairman Proxmire's statement and copies of the bills being considered follow:]

OPENING STATEMENT BY SENATOR PROXMIRE

The CHAIRMAN. This morning's hearing is concerned with the Energy Conservation Act of 1976, a bill designed to minimize the use of energy in existing residential, commercial, public, and industrial buildings. The bill would achieve this by authorizing expenditures of $1.16 billion over 5 years for State information and implementation programs, for home insulation assistance to low-income families and for subsidized home and small business energy conservation improvement loans. In addition, the bill would authorize $10 billion in loan guarantees for energy conservation improvements by private industry and public bodies.

The bill was originally introduced as S. 2932 in February and was jointly referred to the committees on Commerce, Interior, and Banking. The Commerce Committee held 2 days of hearings in February and after substantially revising the bill, reported it as S. 3424 last Thurday. The Interior Committee held 2 days of hearings in late April and early May, and is presently considering the bill for markup.

The hearing this morning has been scheduled to permit the Committee on Banking, Housing and Urban Affairs to consider the legislation and to make its recommendations known to the Senate, in accordance with the procedures under a joint referral.

Energy conservation is not a new subject for the Banking Committee. Earlier this year, the committee considered, at some length, a bill to encourage the insulation of houses occupied by low-income families and to establish energy conservation standards for new buildings. The bill, H.R. 8650, was passed by the Senate and is now in conference. I am hopeful that the House conferees will respond positively to the compromise offered by the Senate in order to resolve the differences in the two bills. We need an effective program of building standards and a workable home insulation program now, if we mean to eliminate the waste of energy in our buildings.

Just a week ago, the committee concluded hearings on S. 2532, the Energy Independence Act. The bill would create an independent Government corporation with authority to invest $100 million in energy projects over the next 7 years in order to make the United States independent of energy imports by the mid-1980's. This complex and costly proposal is scheduled for markup next month.

The need for energy conservation is well known. I will not belabor it further. The bill to be considered this morning proposes five specific programs to encourage conservation of energy in existing buildings. Our distinguished witnesses will provide the committee with a range of expert opinion and perspective regarding these programs.

[Copies of the bills being considered follow:]

[S. 2932, 94th Cong., 2d sess.]

A BILL To minimize the use of energy in residential housing, commercial and public buildings, and industrial plants through federally supported State energy conservation implementation programs

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Energy Conservation Act of 1976".

DECLARATION OF POLICY

SEC. 101. (a) The Congress finds and declares that—

(1) A major program to encourage and facilitate energy conservation measures, including a shift from nonrenewable to renewable sources of energy such as solar energy, in residential housing, commercial and public buildings, and industrial plants is the lowest cost, shortest term, and most environmentally attractive means for avoiding shortages of energy and further dependence on vulnerable foreign sources of energy.

(2) Energy conservation efforts are now inadequate because—

(A) shortages of capital to finance implementation of energy conservation measures are encountered, particularly by individual consumers and owners of small businesses and manufacturing plants;

(B) reliable, impartial information as to the cost savings that would result from such efforts is not readily available; and

(C) there is no organized program that enables consumers to undertake such efforts easily and with confidence that they are economical.

(3) By providing incentives and financial assistance to those sectors of the national economy which do not presently have sufficient access to capital to undertake economical energy conservation efforts, large savings of energy can be realized, and the impact of high energy costs reduced.

(4) A major program to implement energy conservation measures in existing residential housing, commercial and public buildings, and industrial plants will increase national economic output and create jobs, particularly in the construction trades which currently suffer from severe unemployment.

(5) A major program to implement energy conservation measures will cause less damage to the environment than programs to produce additional energy in an amount equivalent to the energy that would be thus saved.

(6) A major program to implement energy conservation measures can make a significant contribution to the national security by reducing the volume of petroleum imports that would otherwise be required, and thus reducing the political and economic vulnerability of the United States.

(7) Primary responsibility for implementing such an energy conservation program should be lodged with the State governments because the great diversity among regions of the Nation requires programs tailored ot local conditions. The States should be allowed broad flexibility to fashion their own programs subject

to general Federal guidelines designed to insure that the measures undertaken result in significant energy and cost savings, with priority to consumers who are least able to finance such measures on their own.

(8) A major program to stimulate energy conservation through loan guarantees and interest subsidies is necessary to supplement and not supplant weatherization assistance programs for low-income consumers, tax credits for conservation investments, or similar financial incentives for conserving energy.

(b) PURPOSE.—It is the purpose of this Act to establish a major program of incentives and financial assistance to encourage widespread implementation of energy conservation measures.

DEFINITIONS

SEC. 102. As used in this part:

(1) The term "energy conservation measure" means a measure undertaken to permanently modify an existing residence, commercial or public building, or industrial plant, and (a) whose primary purpose is to reduce the amount of energy used in such residence, building, or plant, and/or allow a shift from a nonrenewable to a renewable source of energy such as solar energy, and (b) which is likely to result in energy and operating cost savings that will allow recovery of the costs of implementing such a measure within the useful life (not to exceed 15 years) of any permanent facilities installed pursuant to the implementation of such measure.

(2) The term "public building" means any building which is open to the public during normal business hours.

(3) The term "State energy conservation implementation program" means a State program designed to encourage and facilitate implementation of energy conservation measures by energy consumers in such State, in accordance with this Act.

(4) The term "Administrator" means the Administrator of the Federal Energy Administration.

STATE ENERGY CONSERVATION IMPLEMENTATION PROGRAM

SEC. 103. (a) The Administrator shall, by rule, within 90 days after the date of enactment of this Act, prescribe a rule establishing guidelines for the preparation of proposals for the development of State energy conservation implementation programs, and shall publish such guidelines in the Federal Register, together with a statement of basis and justification.

(b) Such guidelines shall be designed to insure the implementation of the Federal criteria enumerated in section 108 and the other provisions of this Act, and shall permit the States the maximum flexibility and discretion practicable to achieve the purpose of this Act.

(c) In developing such guidelines, the Administrator shall invite a representative committee of the Governors of the States (or their designated representatives) to participate with him in preparing such guidelines. The Administrator shall adopt guidelines that are acceptable to the committee of Governors unless he finds, and publishes his reasons therefor in the Federal Register, that guidelines not satisfactory to the committee are necessary to carry out the purposes of this Act, including the mandate to permit the States maximum flexibility to achieve the purpose of this Act.

(d) The Administrator shall invite the Governor of each State to develop a proposal for a State energy conservation implementation program and to submit such proposal to the Administrator for review as promptly as possible after the date such guidelines are established.

FINANCIAL ASSISTANCE

SEC. 104. (a) The Administrator is authorized, in accordance with such rules as he shall prescribe, to provide financial assistance to States whose proposals, submitted pursuant to section 103, satisfy the Federal criteria enumerated in section 108. Such financial assistance may be in the form of loan guarantees, interest subsidies, or grants, as provided in this section. All contractual commitments of the Administrator to provide financial assistance shall be general obligations of the United States backed by its full faith and credit.

(b) In determining the total amount of Federal assistance in the form of loan guarantees, interest subsidies, and grants to be allocated to a State for implementation of a State plan submitted under this Act the Administrator shall take into consideration—

(1) the contribution to energy conservation which can reasonably be expected;
(2) the rate of recovery of the costs of implementing energy conservation measures included in such plan;
(3) the number of persons affected by such plan;
(4) the consistency of such plan with the purposes of this Act; and
(5) such other factors as the Administrator deems appropriate;

except that no State shall receive more than 12.5 percent of the total amount available nationally in each category of financial assistance provided by this Act.

LOAN GUARANTEES

Sec. 105. (a) The Administrator is authorized, in accordance with such rules as he shall prescribe, to guarantee the payment of interest on, and the principal balance of, bonds, debentures, notes and other obligations issued by or on behalf of any borrower (including obligations issued by States, their instrumentalities, or political subdivisions) for the purpose of financing energy conservation measures undertaken pursuant to a State energy conservation implementation program approved by the Administrator. The aggregate amount of guarantees issued by the Administrator under this section shall not, at any time, exceed $10,000,000,000.

(b) Except in accordance with reasonable terms and conditions contained in the written contract of guarantee, no guarantee issued or commitment to guarantee made under this section shall be terminated, canceled, or otherwise revoked. Such a guarantee or commitment shall be conclusive evidence that the underlying obligation is in compliance with the provisions of this section and that such obligation has been approved and is legal as to principal, interest, and other terms. Subject to the conditions of the guarantee or commitment to guarantee, such guarantee shall be incontestable in the hands of the holder of the guaranteed obligation, except as to fraud or material misrepresentation on the part of the holder.

(c) If there is a default by the obligee, as defined in a rule prescribed by the Administrator and in the written contract of guarantee, the holder of the obligation shall have the right to demand payment of the unpaid amount from the agent of the Administrator, if such an agent has been designated pursuant to subsection (e), or from the Administrator if no such agent has been designated for the State in which the obligee resides or has his principal place of business. Within such period as may be specified in the guarantee or related agreements, the Administrator or his agent, as appropriate, shall pay to the holder of the obligation the unpaid interest on and unpaid principal of the guaranteed obligation as to which the borrower has defaulted, unless the Administrator or his agent, as appropriate, finds that there was no default by the borrower in the payment of interest of principal or that such default hss been remedied. Nothing in this section shall be construed to preclude any forbearance by the holder of the obligation for the benefit of the obligee which may be agreed upon by the parties to the guaranteed obligation and approved by the Administrator. Any sums paid to the holder of an obligation by an agent of the Administrator pursuant to this section shall be reimbursed to such agent by the United States Treasury on a timely basis.

(d) The Administrator may designate the Governor of a State (or a person designated by the Governor) to act as his agent in carrying out the provisions of this section as they relate to that State.

INTEREST SUBSIDY FOR RESIDENTIAL AND SMALL BUSINESS CONSUMERS

Sec. 106. (a) The Administrator is authorized, in accordance with such rules as he shall prescribe, to grant an interest subsidy for loans guaranteed by the United States pursuant to section 105, escept that such subsidies shall be restricted to loan guarantees issued to residential and small business energy consumers. A subsidy shall be provided to a residential consumer, or small businessman (as defined by the Small Business Act Amendments of 1974, Public Law 93–386), when the granting of such subsidy will facilitate the granting of a loan to such residential consumer or small businessman for the purpose of implementing energy conservation measures. The rate of interest on any loan subsidized under this section shall be at a level to encourage implementation of energy conservation measures by a residential consumer or small businessman: *Provided*, That any such rate shall be no lower than 5 percent per year when averaged over the term of the loan except that the rate of interest for 20 percent of the total amount of loans guaranteed in any State may not be lower than 2 percent per year when averaged over the term of the loan.

(b) The Administrator may designate the Governor of a State (or a person designated by the Governor) to act as his agent in carrying out the provisions of this section as they relate to that State.

(c) There are authorized to be appropriated for carrying on the provisions of this section, not to exceed $90,000,000 for fiscal year 1977, $180,000,000 for fiscal year 1978, $360,000,000 for fiscal year 1979, $360,000,000 for fiscal year 1980, and thereafter such sums as may be required in subsequent fiscal years for subsidies made pursuant to this section and which remain outstanding.

(d) As used in this section the term "subsidy" is to mean an interest subsidy as authorized in this section, and may include deferral of the repayment of interest.

GRANTS

SEC. 107. (a) The Administrator is authorized, in accordance with such rules as he shall prescribe, to make grants to a State for the purpose of assisting the State in developing administering, and implementing a State energy conservation implementation program for which a proposal has been approved by the Administrator. After one year of the date assistance is first granted to a State pursuant to this section, the sum granted to any State shall not exceed 90 percent of the total cost incurred by that State in developing and implementing its energy conservation implementation program.

(b) There are authorized to be appropriated for carrying out the provisions of this section, not to exceed $50,000,000 for fiscal year 1977, $50,000,000 for fiscal year 1978, $50,000,000 for fiscal year 1979, and $50,000,000 for fiscal year 1980.

FEDERAL CRITERIA

SEC. 108. The Administrator shall not approve any proposal for a State energy conservation implementation program, and shall not provide any financial assistance pursuant to sections 105, 106, and 107, unless the proposed State energy conservation implementation program meets the following criteria:

(1) Procedures are established to encourage and facilitate energy audits of existing residences, buildings, and plants so that the energy and operating cost savings likely to be realized as the result of the implementation of an energy conservation measure can be identified and certified to by a person or persons qualified to provide such certification. Such procedures should also provide that information relating to such certification be readily available to energy consumers who would participate in a State energy conservation implementation program.

(2) The maximum term of any loan guaranteed or subsidized pursuant to this Act shall be the anticipated useful life of any permanent facilities installed pursuant to the implementation of an energy conservation measure, or 15 years, whichever is shorter.

(3) Procedures for obtaining energy audits, guaranteeing and subsidizing loans, publicizing the availability of financial assistance under this Act, and other administrative procedures associated with a State energy conservation implementation program are established that will encourage and persuade energy consumers to participate in such a program. A State is authorized to advertise its program as necessary to facilitate such participation.

(4) Specific incentives are provided to encourage implementation of energy conservation measures by owners and tenants of rented homes, apartments, and buildings under conditions that will assure that tenants share in the resultant cost savings.

(5) A State energy conservation implementation program is designed to achieve the maximum energy savings in the shortest possible time.

(6) Preferences for loan guarantees and subsidies are afforded to energy consumers who demonstrate the greatest energy saving potential per dollar of investment and who do not otherwise have ready access to necessary capital or financial assistance.

(7) Before any financial assistance is provided to a State the Administrator obtains information necessary to provide reasonable assurance that the purposes of this Act will be achieved and that the financial interest of the United States will be protected. Any State energy conservation implementation program approved for funding by the Administrator shall provide that records be kept and made available to the Administrator in such detail and form as he shall determine necessary to facilitate effective audits and performance evaluations of the program. The Administrator and Comptroller General of the United States, or any of their duly authorized representatives, shall, for the purpose of audit and examination, have access to any pertinent books, documents, papers, and records of any recipient of Federal assistance under this part.

ENERGY CONSERVATION COOPERATIVES

SEC. 109. In order to facilitate the participation of residential consumers in State energy conservation implementation programs, each State may, as a part of such program, encourage the establishment and assist in the development of energy conservation cooperatives, whose primary membership shall consist of residential energy consumers. Such cooperatives shall provide expertise with respect to energy conservation measures, and mass purchasing power to facilitate and reduce the cost of energy audits, purchase of materials, and installation of energy conservation equipment. State may assist in the organization of such cooperatives and provide them with financial and technical assistance as part of a State energy conservation implementation program.

COOPERATION OF FEDERAL AGENCIES

SEC. 110. All Federal agencies and all federally funded entities are authorized and directed to cooperate with and participate in State energy conservation implementation programs to the maximum extent feasible.

TERM

SEC. 111. The authority to issue loan guarantees, provide interest subsidies, and make grants under this Act shall expire 4 years after the date of enactment: *Provided,* That any loan guarantee issued, subsidy provided, or grant made pursuant to this Act shall remain valid and effective for the term specified in the agreement to provide such financial assistance.

ANNUAL REPORT AND EXCHANGE OF INFORMATION

SEC. 112. The Administrator shall prepare and submit to the Congress and the President, and shall cause to be published, an annual report on the State energy conservation implementation programs established under this Act. The Administrator shall encourage and facilitate the exchange of information and ideas for energy conservation among the States through conferences and publications designed for that purpose.

[S. 3424, 94th Cong., 2d sess.]

A BILL To minimize the use of energy in housing, nonresidential buildings, and industrial plants through State energy conservation implementation programs and Federal financial incentives and assistance, and for other purposes

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Energy Conservation Act of 1976".

SEC. 2. DECLARATION OF POLICY

(a) FINDINGS.—The Congress finds and declares the following:

(1) The fastest, most cost-effective, and most environmentally sound way to prevent future energy shortages in the United States, while reducing the Nation's dependence on imported energy supplies, is to encourage and facilitate, through major programs, energy conservation measures (including a shift from depletable to nondepletable sources of energy, such as solar energy) with respect to housing, nonresidential buildings, and industrial plants.

(2) Current efforts to encourage and facilitate energy conservation measures are inadequate, as a consequence of—

(A) a lack of adequate and available financing for energy conservation, particularly with respect to individual consumers and owners of small businesses;

(B) a shortage of reliable and impartial information and advisory services, pertaining to practicable energy conservation measures and the probable cost savings therefrom; and

(C) the absence of organized programs which, if they existed, would enable consumers, especially individuals and owners of small businesses, to undertake energy conservation efforts easily and with confidence in their economic value.

(3) Major programs of financial incentives and assistance for energy conservation measures (including a shift to nondepletable energy sources) in housing, nonresidential buildings, and industrial plants would—

(A) significantly reduce the Nation's demand for energy and the need for petroleum imports;

(B) cushion the adverse impact of the high price of energy supplies on consumers; and

(C) increase, directly and indirectly, job opportunities and national economic output.

(4) The primary responsibility for the implementation of such major energy conservation programs should be lodged with the governments of the several States. The diversity of conditions among the various States and regions of the Nation is sufficiently great that a wholly federally administered program would not be as effective as one which is tailored to meet local requirements, and to respond to local opportunities. The States should be allowed flexibility within which to fashion energy conservation programs, subject to general Federal guidelines and monitoring sufficient to protect the financial investments of consumers and the financial interest of the United States and to insure that the measures undertaken in fact result in significant energy and cost savings which would probably not otherwise occur.

(5) To the extent that direct Federal administration is more economical and efficient, direct Federal financial incentives and assistance should be extended through existing and proven Federal programs (such as those conducted by the Small Business Administration) rather than through new programs that would necessitate new and separate administrative bureaucracies.

(6) Such programs should be designed and administered to supplement, and not to supplant or in any other way conflict with, State Energy Conservation Programs under part C of title III of the Energy Policy and Conservation Act (42 U.S.C. 6321, et seq.); weatherization assistance programs for low-income consumers; and other forms of assistance and encouragement for energy conservation.

(b) PURPOSE.—It is therefore declared to be the purpose of the Congress in this Act to encourage and facilitate energy conservation in housing, nonresidential buildings, and industrial plants, through—

(1) State energy conservation implementation programs; and

(2) Federal financial incentives and assistance.

SEC. 3. DEFINITIONS

As used in this Act:

(1) the term "Administrator" means the Administrator of the Federal Energy Administration or his successor.

(2) the term "energy conservation measure" means an investment, action, or procedure which is designed to modify, in whole or in part, any existing housing, nonresidential building, or industrial plant (on a permanent or long-term, rather than on a temporary or short-term, basis), if—

(A) such investment, action, or procedure—

(i) has as its primary purpose a reduction in the amount of energy which is used in such housing, nonresidential building, or industrial plant; or

(ii) is a renewable-resource energy measure; and

(B) such investment, action, or procedure is likely to result in energy-use reduction and operational-cost savings sufficient to enable the owner or operator of such housing, building, or plant to recover or recoup the cost of implementing such investment, action, or procedure during the useful life thereof.

Such term shall not include the purchase or installation of any appliance.

(3) The term "appliance" means any of the following: refrigerator, refrigerator-freezer, freezer, dishwasher, clothes dryer, room air conditioner, television set, kitchen range, kitchen oven, clothes washer, humidifier, dehumidifier, and any other article which the Administrator classifies as an appliance for the purposes of this Act.

(4) The term "includes" and variants thereof should be read as if the phrase "but is not limited to" were also set forth.

(5) The term "renewable-resource energy measure" means an investment, action, or procedure which involves a shift from a depletable to a nondepletable source of energy (e.g., solar or wind) in housing, nonresidential buildings, or industrial plants.

(6) The term "State" means any of the States of the United States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Mariana Islands, or any other territory or possession of the United States.

(7) The term "State energy conservation implementation program" means a program established under section 4.

SEC. 4. STATE ENERGY CONSERVATION IMPLEMENTATION PROGRAMS

(a) GUIDELINES.—(1) The Administrator shall, within 120 days after the date of enactment of this Act, establish and make effective, by rule, guidelines with respect to State energy conservation implementation programs. Such guidelines shall be coordinated with the guidelines prescribed by the Administrator with respect to State energy conservation plans and related matters, pursuant to section 362(b) of the Energy Policy and Conservation Act (42 U.S.C. 6322(b)).

(2) The Administrator shall, at the time of promulgation of the guidelines under paragraph (1), describe and set forth the provisions of one or more model State energy conservation implementation programs.

(3) The Administrator shall invite a representative committee of the Governors of the States to participate with the Administrator in the development and any subsequent amendment of the guidelines and model programs required by paragraphs (1) and (2). Any such guidelines, and amendments to such guidelines, shall be in conformity with the requirements set forth in section 5.

(4) At least 30 days prior to the effective date of the guidelines required by paragraph (1), the Administrator shall publish such guidelines in the Federal Register (including a statement of basis and purpose), together with the model programs required by paragraph (2) and an explanation thereof. The Administrator shall invite interested persons to submit comments in writing and, to the extent practicable, shall evaluate and take into account any such comments received with respect to such guidelines and model programs.

(b) STATE PROGRAM PROPOSALS.—The Administrator shall invite the Governor of each State to develop a proposal for a State energy conservation implementation program in accordance with section 5, and to submit such proposal to the Administrator for review and funding as expeditiously as possible after the promulgation of the guidelines under subsection (a)(1).

SEC. 5. REQUIREMENTS FOR STATE ENERGY CONSERVATION IMPLEMENTATION PROGRAMS

(a) PRELIMINARY REQUIREMENT.—In order to be eligible for Federal financial assistance under this Act, a State shall establish and appoint qualified individuals to be members of a State energy conservation advisory committee. This committee shall be empowered to and shall advise and assist such State in the development and formulation of an energy conservation implementation program which meets or exceeds the requirements set forth in subsection (b). Any such committee shall include members who are representative of each of the following within the State: political subdivisions of the State; labor unions; small businesses; commercial, banking, manufacturing, and agricultural interests; professional engineers, architects, contractors, and associations thereof; colleges and universities; the low-income community; and organizations and groups concerned with consumer protection or environmental protection, or which have significant capacity in demonstrated willingness to assist in developing and carrying out such a program. As used in this paragraph, the term "qualified individual" means an individual who is, by reason of knowledge, experience, or training, capable of making a contribution to such committee.

(A) the energy and cost savings which are likely to result from implementation of energy conservation measures, in general and with respect to specific such measures; and

(B) assistance which is, or may be, available under any Federal or State law, public or private program, or other authority with respect to the planning, financing, installing, and effectiveness-monitoring of such measures.

Such an effort shall involve a variety of actions and procedures, including publications, audiovisual presentations, and demonstrations, to assure that all energy-consuming groups within the State are adequately informed, including low-income persons and others who may otherwise not learn of the personal advantages available through the implementation of energy conservation measures. A State is authorized to advertise its energy conservation implementation program to the extent necessary to achieve the objectives of this paragraph.

(4) A mechanism for learning of advances in the state of the art of energy conservation and for encouraging the incorporation of such advances and other innovations in housing, nonresidential buildings, and industrial plants within the State.

(5) A system for the making of "energy audits" with respect to housing, nonresidential buildings, and industrial plants within the State. Such energy audits shall be designed to identify the energy and cost savings likely to be realized through the implementation of particular energy conservation measures. Such a system shall facilitate the making of such audits, and include procedures for verifying the results of such audits, and methods for collecting and analyzing the data provided by such audits. Such a system shall be established and carried out in such a way as to minimize, to the extent practicable, the cost and burden of such energy audits. Such a system shall, in addition, comply with each of the following requirements:

(A) Any such system shall assure that energy audits are available at no direct cost to homeowners. A State may utilize any procedure or procedures for the conduct of such audits, so long as such procedures are developed in accordance with applicable guidelines established under section 4(a), and result in the identification of cost-effective energy conservation measures.

(B) Any such system shall assure that energy audits are available at reasonable rates to owners of nonresidential buildings and industrial plants. Such audits shall be conducted by persons who are certified by the State to be qualified to conduct energy audits and to identify and advise on practicable energy conservation measures likely to result in energy and cost savings in particular facilities. The process with respect to such certification shall include (i) requirements for minimum formal training in a discipline or area of study which would qualify a person to conduct energy audits, or equivalency achieved through practical experience; (ii) a finding by the State that such person has met such minimum requirements; and (iii) any other requirements which a State may impose, consistent with the guidelines established under section 4(a).

(C) Any State carrying out an energy conservation implementation program shall make provision for (i) periodic review by appropriate State officials of the results of energy audits conducted by persons who are certified by such State to conduct energy audits, in order to minimize error and to detect any deception or fraud; (ii) withdrawal of certification from persons guilty of deception or fraud; and (iii) establishment and maintenance of up-to-date lists of certified energy auditors, and previously certified energy auditors whose certification was withdrawn pursuant to clause (ii). The information contained in these lists shall be readily available to the public upon request, and the availability of such information shall be widely publicized by the State.

(6) Provisions and procedures requiring the agencies of such State which have primary responsibilities for the protection of consumers to develop and carry out a specific and continuing program for the purpose of preventing unfair and deceptive acts or practices affecting commerce which relate to the implementation of energy conservation measures. The Federal Trade Commission is authorized and directed to cooperate with and assist such State agencies in such activities.

(7) Provisions requiring, and procedures for, the periodic verification, by appropriate State officials—

(A) of the accuracy of the finding and the certification, if any, made by a lending institution within the State, with respect to any application for energy conservation assistance under an amendment made by section 8 or 9; and

(B) of the actual and complete implementation, the cost, and the effectiveness of any energy conservation measure for which financing was obtained with such assistance.

(8) Active involvement by the State, and the extension of appropriate legal and administrative incentives, to encourage and facilitate the making of loans, at reasonable interest rates and on reasonable terms, by lending institutions located within the State, where the purpose of such loans is to finance energy conservation measures which have been identified and recommended by certified energy auditors or otherwise, in accordance with the provisions of this Act.

(9) Active involvement by the State, with respect to energy conservation cooperatives—

(A) to encourage and facilitate (i) the establishment of, and (ii) the participation of energy consumers in, such cooperatives; and

(B) to assure that such cooperatives and their members have, with respect to energy conservation measures (i) adequate information, (ii) available expert assistance, and (iii) the benefits of mass purchasing power, including lower costs and better service.

For purposes of this paragraph, an energy conservation cooperative is an association or other entity whose members share certain characteristics (that is, homeowners or owners of small businesses) or concerns (that is, homeowners, tenants, and businesses in a particular area), or both, and who have combined together to conserve energy and save money through mutually beneficial, joint, or shared activities and efforts.

(10) Other entities, provisions, mechanisms, or procedures which, in the judgment of the State, will facilitate its efforts to carry out an energy conservation implementation program, including appropriate enforcement provisions: *Provided*, That each is consistent with the guidelines established under section 4(a).

SEC. 6. FEDERAL FINANCIAL ASSISTANCE GRANTS FOR STATE PROGRAMS

(a) IN GENERAL.—The Administrator is authorized, in accordance with such rules as he shall prescribe, to make grants to any State for the purpose of assisting such State to carry out its energy conservation implementation program if, in the judgment of the Administrator, such program meets the requirements set forth in section 5. Funding shall not be denied to any proposal submitted under section 4(b) without notice and an opportunity for an agency hearing.

(b) FEDERAL REGISTER.—Commencing with the fiscal year beginning October 1, 1977, and for each fiscal year thereafter during which this Act is in effect, the amount of Federal financial assistance granted to a State by the Administrator pursuant to this section shall not exceed 90 percent of the cost expected and likely to be incurred by such State in carrying out its State energy conservation implementation program.

(c) RECORDS, AUDIT, AND EXAMINATION.—Each State receiving Federal financial assistance under this Act shall make and retain such records as the Administrator or the Comptroller General of the United States shall require, including records which fully disclose the amount and disposition of such assistance; the total cost of the program, projects, measures, or systems for which such assistance was given or used; the source and amount of any funds not supplied by the Administrator; and any information and data which the Administrator or the Comptroller General determines are necessary to protect the interests of the United States and to facilitate an effective financial audit and performance evaluation. Such recordkeeping shall be in accordance with Federal Management Circular 74–7 (34 C.F.R. part 256) and any modification thereto. The Administrator and the Comptroller General, or any of their duly authorized representatives, shall have access, until the expiration of 3 years after the completion of any such program, project, measure, or system, to any books, documents, papers, and records of receipts which the Administrator or the Comptroller General deems to be related or pertinent, directly or indirectly, to any such Federal financial assistance.

(d) LIMITATION.—No State may receive, in any fiscal year, more than 10 percent of the total funds authorized to be appropriated for such year under subsection (e).

(e) AUTHORIZATION FOR APPROPRIATIONS.—There are authorized to be appropriated to the Administrator, for purposes of carrying out the provisions of this section, not to exceed $25,000,000 for the fiscal year ending September 30, 1977; not to exceed $50,000,000 for the fiscal year ending September 30, 1978; not to exceed $50,000,000 for the fiscal year ending September 30, 1979; and not to exceed $50,000,000 for the fiscal year ending September 30, 1980. Such sums are to remain available until expended.

SEC. 7. ENERGY CONSERVATION ASSISTANCE FOR LOW-INCOME PERSONS

Section 114 of title I of the Energy Conservation and Insulation of Buildings Act of 1976 is amended by inserting at the end thereof the following new subsection:

"(b) In addition to the sums otherwise authorized, there are authorized to be appropriated, for purposes of carrying out the provisions of this title, not to exceed $25,000,000 for the fiscal year ending September 30, 1977; not to exceed $50,000,000 for the fiscal year ending September 30, 1978; not to exceed $50,000,000 for the fiscal year ending September 30, 1979; and not to exceed $100,000,000 for the fiscal year ending September 30, 1980.".

SEC. 8. ENERGY CONSERVATION ASSISTANCE FOR HOMEOWNERS

(a) The last paragraph of section 2(a) of the National Housing Act is amended—

(1) by inserting after "energy conserving improvements," the following: "energy conservation measures,";

(2) by striking out "and" at the end of clause (2) thereof;

(3) by striking out the period at the end thereof and inserting in lieu thereof "; and"; and

(4) by adding at the end thereof the following new clause: "(4) the terms 'energy conservation measure' and 'renewable-resource energy measure' have the meanings prescribed for such terms in section 3 of the Energy Conservation Act of 1976.".

(b) Section 2 of the National Housing Act is amended by adding at the end thereof the following new subsection:

"(i)(1) The Secretary shall pay to any lending institution an amount not exceeding the lesser of $400 or 20 percent of the principal, with respect to any loan made by that institution to finance an energy conservation measure, other than a renewable-resource energy measure. In the case of a loan made to finance a renewable-resource energy measure, the Secretary shall pay to the lending institution an amount not exceeding $2,000 or 25 percent of the principal thereof, whichever is less. Notwithstanding the two preceding sentences, if the Secretary makes a finding in writing, together with reasons therefor, that the cost of implementing energy conservation measures in any specified State is so high (because of its isolated geographic location or other unique features) that substantial energy conservation implementation is unlikely to take place in the absence of additional financial incentives, the amount required to be paid by the Secretary pursuant to the first or second sentence of this paragraph, whichever is applicable, shall be increased by no more than 50 percent of the amount otherwise provided for, if the lending institution certifies that the State in which such loan is made has paid, or is obligated to pay, to such lending institution an amount equal to the additional such amount to be paid by the Secretary: *Provided*, That the additional such amounts, in the aggregate for any such specified State, shall not exceed $2,000,000 in any fiscal year. Any amounts paid to a lending institution under this subsection shall be credited by the institution to reduce the principal amount of the loan or applied to reduce the amount of interest payable in connection with such loan.

"(2) No assistance under this subsection may be made available with respect to a loan unless such loan is made to finance an energy conservation measure which a lending institution finds to be consistent with the provisions of an approved State energy conservation implementation program (as established pursuant to the Energy Conservation Act of 1976). Any such loan shall conform to the other provisions of this section, to the extent not inconsistent with the provisions of this subsection.

"(3) There is authorized to be appropriated to the Secretary, for purposes of carrying out the provisions of this subsection, not to exceed $100,000,000 for the fiscal year ending September 30, 1977; not to exceed $200,000,000 for the fiscal year ending September 30, 1978; not to exceed $200,000,000 for the fiscal year ending September 30, 1979; and not to exceed $200,000,000 for the fiscal year eading September 30, 1980.".

Sec. 9. Energy Conservation Assistance for Small Business Concerns

(a) Section 7 of the Small Business Act (15 U.S.C. 636) is amended by adding at the end thereof the following new subsection:

"(l) The Administration also is empowered to make loans (in cooperation with banks or other lending institutions through agreements to participate on an immediate or deferred basis) to assist any small business concern in implementing any energy conservation measures which a lending institution finds to be consistent with the provisions of an approved State energy conservation implementation program (as established pursuant to the Energy Conservation Act of 1976). The amount of any such loan may include the cost of an energy audit carried out in accordance with the applicable State program. Any such loan shall conform to the other provisions of this Act, to the extent not inconsistent with the provisions of this subsection, and shall have a maximum term not to exceed 20 years. With respect to any such loan, the Administration shall pay the lending institution an amount not to exceed 20 percent of the principal thereof or $5,000, whichever is less. Notwithstanding the preceding sentence, if the Administration makes a finding in writing, together with reasons therefor, that the cost of implementing energy conservation measures in any specified State is so high (because of its isolated geographic location or other unique features) that substantial energy conservation implementation is unlikely to take place in the absence of additional financial incentives, the amount required to be paid by the Administration pursuant to such sentence shall be increased by no more than 50 percent of the amount otherwise provided for, if the lending institution certifies that the State in which such loan is made has paid, or is obligated to pay, to such lending institution an amount equal to the additional such amount to be paid by the Administration: *Provided,* That the additional such amounts, in the aggregate for any such specified State, shall not exceed $2,000,000 in any fiscal year. Any amounts paid to a lending institution under this subsection shall be credited by the institution to reduce the principal amount of the loan or applied to reduce the amount of interest payable in connection with such loan.

(b) Section 4(c)(1) of the Small Business Act (15 U.S.C. 633(c)(1)) is amended by—

(1) striking out "and" immediately before "(B)" therein; and

(2) inserting before the period at the end thereof the following: "; and (C) a financial assistance fund for energy conservation measures which shall be available for the purpose of financing loans made pursuant to section 7(l) of this Act (15 U.S.C. 636(l)) and for administrative expenses connected therewith".

(c) Section 4(c)(2) of the Small Business Act (15 U.S.C. 633(c)(2)) is amended by—

(1) striking out "and" immediately before "(B)" therein; and

(2) inserting before the period at the end thereof the following: "; and (C) pursuant to section 7(l) of this Act (15 U.S.C. 636(l)), shall be paid into the financial assistance fund for energy conservation measures".

(d) Section 4(c)(4) of the Small Business Act (15 U.S.C. 633(c)(4)) is amended by—

(1) striking out "and" immediately before "(D)"; and

(2) striking out the period at the end thereof and inserting in lieu thereof the following: "; and (E) under section 7(l) of this Act, shall not exceed $300,000,000. The total amount of payments to lending institutions under section 7(l) shall not exceed $60,000,000.".

SEC. 10. ENERGY CONSERVATION OBLIGATION GUARANTEES

(a) IN GENERAL.—The Administrator is authorized, in accordance with this section and such rules as he shall prescribe, to guarantee, and to enter into commitments to guarantee, lenders against loss of principal or interest on loans, bonds, debentures, notes, or other obligations issued by or on behalf of an eligible borrower (including obligations issued by any State or instrumentality or political subdivision thereof).

(b) COST OF ENERGY AUDITS.—Any obligation issued by or on behalf of an eligible borrower may include the cost of an energy audit carried out in accordance with an approved State energy conservation implementation program (as established pursuant to this Act).

(c) DEFINITION.—For purposes of this section, the term "eligible borrower" means the owner of an industrial plant or commercial building, a corporation or a subsidiary of a corporation, a nonprofit institution, or any other person which intends to utilize the financial resources made available by a loan guaranteed pursuant to subsection (a) to finance energy conservation measures identified pursuant to regulations of the Administrator.

(d) LIMITATIONS.—The Administrator shall limit the availability of an obligation guarantee otherwise authorized by subsection (a) to energy conservation measure investments which are expected and likely to result in energy and cost savings which will be sufficient, within the useful life of such measure, to repay the principal amount of such obligation and interest thereon but which would not earn a return that would be sufficient, in the absence of such obligation guarantee, to make such investment commercially feasible for the borrower involved.

(e) EXTENT OF GUARANTEE.—Any guarantee under this section shall apply only to so much of the principal amount of the loan or obligation involved as does not exceed 90 percent of the aggregate cost of the energy conservation measures with respect to which such loan is made or such obligation is entered into. No guarantee issued, and no commitment to guarantee, which is made under this section shall be terminated, canceled, or otherwise revoked except in accordance with reasonable terms and conditions prescribed by the Administrator, after consultation with the Secretary of the Treasury and the Comptroller General of the United States, and contained in the written commitment to guarantee. Any such guarantee or commitment to guarantee shall be conclusive evidence that the underlying obligation complies with the provisions of this section and rules under this section and that such obligation has been approved and is legal as to principal, interest, and other terms. Any such guarantee shall, subject to the conditions and terms thereof, be incontestable in the hands of the holder of the guaranteed obligation, except as to fraud or material misrepresentation on the part of the holder.

(f) INFORMATION, RECORDS, AUDIT, AND EXAMINATION.—No guarantee and no commitment to guarantee may be issued or made under this section unless and until the Administrator obtains any information reasonably requested and such assurances as are in his judgment (after consultation with the Secretary of the Treasury and the Comptroller General of the United States) reasonable to protect the interests of the United States and to assure that such guarantee or commitment to guarantee is consistent with and will further the declaration of policy of this Act. The Administrator shall require that records be kept and made available to the Administrator or the Comptroller General, or any of their duly authorized representatives, in such detail and form as are determined necessary to facilitate an effective financial audit and performance evaluation of the energy conservation measure investment involved. The Administrator and the Comptroller General, or any of their duly authorized representatives, shall have access to any pertinent books, documents, papers, and records of any recipient of Federal assistance under this section.

(g) DEFAULT.—(1) If there is a default by the obligor in any payment of principal or interest due under an obligation guaranteed under subsection (a), and if such default continues for 30 days, the holder of such obligation or his agent has the right to demand payment by the Administrator of the unpaid interest on, and the unpaid principal of, such obligation, consistent with the terms of the guarantee of such obligation. Such payment may be demanded after or before the expiration of such period as may be specified in the guarantee or related agreements, but not later than 90 days from the date of such default. Within such specified period, but not later than 60 days from the date of such demand, the Administrator shall pay to such holder the unpaid interest on, and the unpaid principal of, such obligation, consistent with the terms of the guarantee of such obligation, except that (A) the Administrator shall not be required to make any such payment if he finds, prior to the expiration of such period, that there was no default by the obligor in the payment of interest or principal or that such default has been remedied, and (B) no such holder shall receive payment or be entitled to retain payment in a total amount which, together with any other recovery (including any recovery based upon a security interest in equipment or facilities) exceeds the actual loss of such holder.

(2) If the Administrator makes payment to a holder under paragraph (1), the Administrator shall thereupon—

(A) have all of the rights granted to him by law or agreement with the obligor; and

(B) be subrogated to all of the rights which were granted such holder, by law, assignment, or security agreement between such holder and the obligor.

(3) The Administrator may, in his discretion, complete, recondition, reconstruct, renovate, repair, maintain, operate, charter, rent, sell, or otherwise dispose of any property or other interests obtained by him pursuant to this section. The terms of any such sale or other disposition shall be as approved by the Administrator.

(4) If there is a default by the obligor in any payment due under any obligation guaranteed under subsection (a), the Administrator shall take such action against such obligor or any other person as is, in his discretion, necessary or appropriate to protect the interests of the United States. Such an action may be brought in the name of the United States or in the name of the holder of such obligation. Such holder shall make available to the Administrator all records and evidence necessary to prosecute any such suit. The Administrator may, in his discretion, accept a conveyance of property in full or partial satisfaction of any sums owed to him. If the Administrator receives, through the sale of property, an amount greater than his cost and the amount paid to the holder under paragraph (1) he shall pay such excess to the obligor.

(h) LIMITS ON AMOUNTS WHICH MAY BE GUARANTEED.—The aggregate amount of the outstanding guarantees which may be issued by the Administrator under this section shall not at any time exceed a total of $10,000,000,000.

(i) AUTHORIZATION.—(1) There are authorized to be appropriated to the Administrator such amounts, to remain available until expended, as are necessary to discharge the obligations of the Administrator under subsection (g).

(2) If the moneys available to the Administrator are not sufficient to pay any amount which the Administrator is obligated to pay under subsection (g), the Administrator shall issue to the Secretary of the Treasury notes or other obliga-

tions, in such forms and denominations, bearing such maturities, and subject to such terms and conditions as such Secretary may prescribe. The Administrator shall redeem such notes or other obligations from amounts appropriated under paragraph (1). Such notes or other obligations shall bear interest at a rate determined by the Secretary of the Treasury on the basis of the current average mark yield on outstanding marketable obligations of the United States on comparable maturities during the month preceding the issuance of such notes or other obligations. The Secretary of the Treasury shall purchase any notes or other obligations issued under this paragraph, and for this purpose such Secretary may use as a public debt transaction the proceeds from the sale of any securities issued under the Second Liberty Bond Act, as now or hereafter in force. The purposes for which securities may be issued under that Act are extended to include any purchase of notes or other obligations issued under this paragraph. The Secretary of the Treasury may at any time sell any of the notes or other obligations so acquired under this paragraph. All redemptions, purchases, and sales of such notes or other obligations by the Secretary of the Treasury shall be treated as public debt transactions of the United States.

SEC. 11. EXCHANGE OF INFORMATION

(a) IN GENERAL.—The Administrator shall encourage and facilitate the exchange of information and ideas among the States with respect to energy conservation, through conferences, publications, and other appropriate means.

(b) FROM STATES.—The information developed as a result of energy audits conducted pursuant to State energy conservation implementation programs established under this Act shall be collected by each State and made available to the Administrator, and to other interested persons.

(c) TO STATES.—The Administrator shall make available to the States any information subject to his control which may be useful in developing and carrying out the provisions of this Act and State energy conservation implementation programs. No State shall impose, pursuant to this Act, any reporting requirement which will result in the receipt of information which has previously been, or which will be, reported to the Administrator as a result of compliance with regulations in effect on the date of enactment of this Act.

SEC. 12. ANNUAL REPORT

The Administrator shall prepare and submit to the Congress and the President, and shall cause to be published, an annual report on (1) the State energy conservation implementation programs, and (2) the energy conservation measures for which financing was obtained with Federal financial assistance provided under this Act or an amendment made by this Act. Such report shall include—

(A) a summary of the actions taken to implement the provisions of this Act;

(B) a detailed statement of the status, impact, and effectiveness of the State energy conservation implementation programs;

(C) a summary of existing or anticipated problems with respect to further implementation of the provisions of this Act;

(D) recommendations for additional legislation, if any, which is deemed necessary or appropriate; and

(E) any other matters which the Administrator deems appropriate.

Senator GARN. Mr. Orlebeke, go right ahead, if you would like to start.

STATEMENT OF CHARLES J. ORLEBEKE, ASSISTANT SECRETARY FOR POLICY DEVELOPMENT AND RESEARCH, DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT, ACCOMPANIED BY FRED TRUSLOW, OFFICE OF HOUSING PRODUCTION AND MORTGAGE CREDIT

Mr. ORLEBEKE. All right, Senator. I appreciate the opportunity to discuss with you the views of the Department of Housing and Urban Development regarding S. 3424, the proposed Energy Conservation

Act of 1976. My comments will be directed to the portions of S. 3424 concerned with energy conservation in residences.

Before discussing the parts of the bill which apply to residential programs, I would like to describe briefly the President's proposals to encourage residential energy conservation.

As you know, in January of last year, the President sent to the Congress legislative proposals containing a three-pronged approach to encourage major increases in energy conservation in buildings. The first of these was a homeowners' tax credit, to apply to 15 percent of the first $1,000 spent on insulation, caulking, weatherstripping, and similar energy conservation home improvements. It was estimated at that time that a savings of 270,000 barrels of oil per day could be obtained through quick enactment of the measure. The President also proposed the initiation of a program of grants to States for State programs to purchase materials such as insulation, weatherstripping, and caulking, for installation in the homes of low-income and low-income elderly persons. The third proposal was to mandate the development of thermal performance standards for all new residential and commercial buildings, to be promulgated by the Secretary of Housing and Urban Development for adoption by State and local governments.

The proposal for a homeowners' tax credit has already attracted considerable support. It has been passed by the House in somewhat modified form, and is now pending action by the Senate Finance Committee.

The proposed weatherization and thermal standards programs have been passed by both the House and the Senate, as H.R. 8650. Although we are not fully in agreement with several of the changes the Congress has made in these measures, we are hopeful that a workable compromise between the House and Senate versions will be achieved and that a bill to establish these programs will soon be ready for the President's signature. This bill, as you know, is currently in conference, Senator.

HUD is also currently involved in several important program activities to spur increased energy conservation in residences and utilization of renewable energy resources, particularly solar energy for residential heating and cooling applications. I would like to summarize briefly several of these activities for the committee.

The first is the FHA home improvement loan program authorized under title I of the National Housing Act, under which loans made for home improvements that increase the basic livability or utility of residential property are insured by HUD.

For many years, the program has encouraged the installation of storm doors, storm windows, insulation, and other improvements that increase the energy efficiency of residences. Title I property improvement insurance is restricted to loans made for alterations, repairs, or improvements of existing occupied structures. A homeowner may apply for an insured loan at any FHA-approved lending institution. The insured lender then investigates and approves the borrower's credit and performs all the usual services incidental to the financing of installment loans. The owner of a one- or two-family structure may apply for a loan for as much as $10,000. Financing charges are limited by the Secretary to 12 percent per year, and the term of the loan is limited to a maximum of 12 years and 32 days.

I would like to point out that the title I program involves no HUD processing of individual loan applications. Rather, FHA insures a portion of portfolios of loans made by private lenders with which FHA contracts to pay losses on claims. Participating lenders in turn agree to meet statutory and regulatory conditions on loans made, such as maximum interest rates. Title I has been essentially a self-policing program in which discipline has been provided primarily by participating lenders. These institutions must assure that loans are not used for ineligible items in order to protect themselves against the possibility of a claim denial in the event the borrower defaults.

Secretary Hills directed in February that we give a bigger push to use of the title I program for energy conservation. We will be using television and radio spots and a series of news releases to increase public awareness of the program. We expect to have considerable success with this approach, as we have had with the publication of "In the Bank or Up the Chimney?," HUD's energy conservation manual for homeowners. Over 100,000 copies of this book have been distributed, and sales from the Government Printing Office have been running at approximately 500 per day. Several commercial publishers are also printing and distributing it through their own networks. As you know, this publication contains worksheets which allow the homeowner to evaluate for himself the costs and benefits of energy-conserving home improvements.

A second major HUD activity to encourage residential energy conservation is the inclusion of tight energy efficiency requirements in the mobile home construction and safety standards promulgated on December 18, 1975. Under HUD supervision, an energy task force was convened to review the energy performance of mobile homes. Calculations made by the task force show mobile homes built to the HUD standard will be 29 percent more efficient in energy use than mobile homes designed to previous voluntary standards. Since approximately a quarter of all new housing production in recent years and 90 percent of all new homes under $20,000 have been mobile homes, this step is an important one in the overall HUD program to improve the efficiency of residential energy use.

A third HUD activity in this area is the residential application portion of the Federal solar heating and cooling demonstration program mandated in Public Law 93-409, the Solar Heating and Cooling Demonstration Act. In March, Dr. Claude E. Barfield, HUD's Deputy Assistant Secretary for Research and Demonstration, who is also with me this morning, Senator Garn, testified in detail on the HUD portion of this program before the Subcommittee on Energy Research and Water Resources of the Interior Committee, so I will not describe the program in detail at this time.

I'd like to skip a bit in the interest of time, Senator Garn, and move to the discussion of section 8 of the proposed bill, skipping to page 7 in my prepared text.

Section 8 of the bill would amend the title I property improvement loan program to authorize insurance of loans made to finance energy conservation improvements and investments in renewable energy resources. In addition, the Secretary would be directed to pay lending institutions an amount not to exceed the lesser of 20 percent of principal or $400 to reduce principal or interest in connection with any loan made for energy conservation measures other than renewable-resource investments. For renewable-resource investment loans, including loans for solar energy and wind energy installations, these payments could be as high as the lesser of 25 percent of principal or $2,000. These amounts could be increased by up to 50 percent in certain geographic areas. $100 million is authorized to be appropriated for these purposes for fiscal year 1977, and $200 million for each of the 3 fiscal years 1978, 1979, and 1980. These payments could be made only with respect to loans for energy conservation measures which the lending institution finds to be consistent with the provisions of an approved State program established under the bill.

We do not believe that section 8 should be considered favorably by the committee, since it contains basic flaws in approach which argue strongly against its enactment.

In the first place, we would be concerned over the effect of section 8 in granting substantial subsidies—without regard to need or the income of the recipient of the loan. In our opinion, the greatest need is for assistance to low-income individuals or families who may not have resources to undertake energy saving measures even though they may benefit from such measures as much or proportionately more than high-income families. Assistance to these low-income families would be provided under title I of H.R. 8650.

In our view, if some form of subsidy is needed to encourage energy conservation improvements in homes over and above that which would be provided under title I of H.R. 8650 as reported by this committee and later passed by the Senate, the tax credit approach would be preferable to a subsidy tied to individual Federal or federally insured loans.

An additional major difficulty with section 8 is that it contemplates substantial subsidies for residential solar and other renewable-resource energy installations. At the present time, we cannot recommend any ongoing subsidy program for this kind of installation. Information on solar systems is still very limited. System costs are being quoted or estimated at everywhere from a few hundred dollars to tens of thousands of dollars for various types of installations, depending on local climatic and geographic conditions. Performance claims are made based on a producer's own evaluation procedures, which may have no clear correlation to procedures used by other producers. Under these circumstances it has been virtually impossible to make useful comparisons. The solar heating and cooling demonstration program is intended to provide performance and cost data, collected and evaluated on a consistent, common basis. This will provide information needed by the Secretary to carry out her responsibility to determine if incentives are warranted.

Without such information, an estimate of the effect of such incentives on consumer demand and Federal budget costs is hypothetical at best. Accordingly, we recommend that no action be taken on incentives until the need for, and methods and costs of appropriate incentive programs can be determined during the latter part of the demonstration program.

Senator Garn, that completes my prepared testimony. I will be glad to respond to questions later and I would also like to introduce Deputy Assistant Secretary Fred Truslow from our Office of Housing

Production and Mortgage Credit, which is responsible for administering the title I program and who will also be assisting in response to questions.

Senator GARN. Thank you very much.

[Complete statement follows.]

STATEMENT OF CHARLES J. ORLEBEKE, ASSISTANT SECRETARY FOR POLICY DEVELOPMENT AND RESEARCH, DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

Mr. Chairman and members of the Committee, I appreciate the opportunity to discuss with you the views of the Department of Housing and Urban Development regarding S. 3424, the proposed Energy Conservation Act of 1976. My comments will be directed to the portions of S. 3424 concerned with energy conservation in residences.

Before discussing the parts of the bill which apply to residential programs, I would like to describe briefly the President's proposals to encourage residential energy conservation.

As you know, in January of last year, the President sent to the Congress legislative proposals containing a three-pronged approach to encourage major increases in energy conservation in buildings. The first of these was a homeowners' tax credit, to apply to 15 percent of the first $1000 spent on insulation, caulking, weatherstripping and similar energy conservation home improvements. It was estimated at that time that a savings of 270,000 barrels of oil per day could be obtained through quick enactment of the measure. The President also proposed the initiation of a program of grants to States for State programs to purchase materials such as insulation, weatherstripping and caulking, for installation in the homes of low-income and low-income elderly persons. The third proposal was to mandate the development of thermal performance standards for all new residential and commercial buildings, to be promulgated by the Secretary of Housing and Urban Development for adoption by State and local governments.

The proposal for a homeowners' tax credit has already attracted considerable support. It has been passed by the House in somewhat modified form, and is now pending action by the Senate Finance Committee.

The proposed weatherization and thermal standards programs have been passed by both the House and the Senate, as H.R. 8650. Although we are not fully in agreement with several of the changes the Congress has made in these measures, we are hopeful that a workable compromise between the House and Senate versions will be achieved and that a bill to establish these programs will soon be ready for the President's signature.

HUD is also currently involved in several important program activities to spur increased energy conservation in residences and utilization of renewable energy resources, particularly solar energy for residential heating and cooling applications. I would like to summarize briefly several of these activities for the Committee.

The first is the FHA Home Improvement Loan program authorized under Title I of the National Housing Act, under which loans made for home improvements tht increase the basic livability or utility of residential property are insured by HUD.

For many years, the program has encouraged the installation of storm doors, storm windows, insulation and other improvements that increase the energy efficiency of residences. Title I property improvement insurance is restricted to loans made for alterations, repairs or improvements of existing occupied structures. A homeowner may apply for an insured loan at any FHA-approved lending institution. The insured lender then investigates and approves the borrower's credit and performs all the usual services incidental to the financing of installment loans. The owner of a one or two family structure may apply for a loan for as much as $10,000. Financing charges are limited by the Secretary to 12 percent per year and the term of the loan is limited to a maximum of 12 years and 32 days.

I would like to point out that the Title I program involves no HUD processing of individual loan applications. Rather, FHA insures a portion of portfolios of loans made by private lenders with which FHA contracts to pay losses on claims. Participating lenders in turn agree to meet statutory and regulatory conditions on loans made, such as maximum interest rates. Title I has been essentially a self-policing program in which discipline has been provided primarily by participating lenders. These institutions must assure that loans are not used for ineligible items in order to protect themselves against the possibility of a claim denial in the event the borrower defaults.

Secretary Hills directed in February that we give a bigger push to use of the Title I program for energy conservation. We will be using television and radio spots and a series of news releases to increase public awareness of the program. We expect to have considerable success with this approach, as we have had with the publication of "In the Bank or Up the Chimney?," HUD's energy conservation manual for homeowners. Over 100,000 copies of this book have been distributed, and sales from the Government Printing Office have been running at approximately 500 per day. Several commercial publishers are also printing and distributing it through their own networks. As you know, this publication contains worksheets which allow the homeowner to evaluate for himself the costs and benefits of energy conserving home improvements.

A second major HUD activity to encourage residential energy conservation is the inclusion of tight energy efficiency requirements in the mobile home construction and safety standards promulgated on December 18, 1975. Under HUD supervision, an energy task force was convened to review the energy performance of mobile homes. Calculations made by the task force show mobile homes built to the HUD standard will be 29 percent more efficient in energy use than mobile homes designed to previous voluntary standards. Since approximately a quarter of all new housing production in recent years and 90 percent of all new homes under $20,000 have been mobile homes, this step is an important one in the overall HUD program to improve the efficiency of residential energy use.

A third HUD activity in this area is the residential application portion of the federal solar heating and cooling demonstration program mandated in P.L. 93–409, the Solar Heating and Cooling Demonstration Act. In March, Dr. Claude E. Barfield, HUD's Deputy Assistant Secretary for Research and Demonstration testified in detail on the HUD portion of this program before the subcommittee on Energy Research and Water Resources of the Interior Committee, so I will not describe the program in detail at this time. However, I would like to emphasize two points he made in March. First, P.L. 93–409 calls for the development of interim and definitive performance criteria and the establishment of procedures for product certification. Interim performance criteria have been developed for us by the National Bureau of Standards, and were published in January 1975.

In order to develop the definitive performance criteria, some of the demonstration units will be instrumented to determine the technical performance of the solar equipment, and the contribution of solar energy to the total building heating and combined heating and cooling load. Another part of this task involves a major national effort to develop consensus standards acceptable to the emerging solar industry, including engineers, architects, HVAC contractors, etc. This process of voluntary consensus standards provides a unique system whereby all interested parties participate in the development of standards for the industry, thereby encouraging the acceptance of these standards by those who must use them. As part of this process, certification procedures and criteria for accreditation of private testing labs will also be developed.

The American National Standards Institute, the American Society for Testing and Materials, and the American Society of Heating, Refrigerating, and Air Conditioning Engineers are but three of the professional societies who are taking the lead in this effort. Federal support for this part of the program is being provided by HUD, ERDA, NBS, NASA, GSA and DOD, among other agencies.

The consensus standards process does, however, take time to implement. Because of the rapidly growing interest in solar heating and cooling systems, and the increasing volume of requests relative to HUD mortgage insurance for residential units utilizing a solar energy system we have asked the National Bureau of Standards to assist us in the development of specific Minimum Property Standards for solar heating and cooling systems. These "solar MPS" could permit the Federal Housing Administration and the Veterans' Administration to review and accept solar energy systems for housing which is assisted by these agencies.

Also, as Dr. Barfield noted in his March testimony, P.L. 93–409 directs the HUD Secretary to undertake a study of the necessity for a program of incentives to accelerate the commercial application of solar heating and cooling technology. We expect that during the course of the demonstration the current high cost of manufacturing solar equipment will come down. Together with the projected increases in the cost of the other energy sources, this should make the use of solar energy much more attractive. But, as directed by 93–409, we are planning to investigate the need for financial incentives and the impact that such incentives would have on the industry and on the economy. The demonstration is proceeding on schedule, and we expect to have findings and recommendations for the Congress within the period established in the Act.

I would now like to discuss Section 8 of the bill which would amend the "Title I" property improvement loan program to authorize insurance of loans made to finance energy conservation improvements and investments in renewable energy resources. In addition, the Secretary would be directed to pay lending institutions an amount not to exceed the lesser of 20 percent of principal or $400 to reduce principal or interest in connection with any loan made for energy conservation measures other than renewable-resource investments. For renewable-resource investment loans, including loans for solar energy and wind energy installations, these payments could be as high as the lesser of 25 percent of principal or $2,000. These amounts could be increased by up to 50 percent in certain areas. $100 million is authorized to be appropriated for these purposes for fiscal year 1977, and $200 million for each of the three fiscal years 1978, 79, and 80. These payments could be made only with respect to loans for energy conservation measures which the lending institution finds to be consistent with the provisions of all approved State program established under the bill.

We do not believe that Section 8 should be considered favorably by the Committee, since it contains basic flaws in approach which argue strongly against its enactment.

In the first place, we would be concerned over the effect of Section 8 in granting substantial subsidies—as much as $3,000 per dwelling unit in some areas—without regard to need or the income of the recipient of the loan. In our opinion, the greatest need is for assistance to low-income individuals or families who may not have resources to undertake energy saving measures even though they may benefit from such measures as much or proportionately more than high income families. Assistance to these low-income families would be provided under Title I of H.R. 8650.

In our view, if some form of subsidy is needed to encourage energy conservation improvements in homes over and above that which would be provided under Title I of H.R. 8650 as reported by this Committee and later passed by the Senate, the tax credit approach would be preferable to a subsidy tied to individual Federal or federally insured loans.

An additional major difficulty with Section 8 is that it contemplates substantial subsidies for residential solar and other renewable-resource energy installations. At the present time, we cannot recommend any ongoing subsidy program for this kind of installation. Information on solar systems is still very limited. System costs are being quoted or estimated at everywhere from a few hundred dollars to tens of thousands of dollars for various types of installations, depending on local climatic and geographic conditions. Performance claims are made based on a producer's own evaluation procedures, which may have no clear correlation to procedures used by other producers. Under these circumstances it has been virtually impossible to make useful comparisons. The solar heating and cooling demonstration program is intended to provide performance and cost data, collected and evaluated on a consistent, common basis. This will provide information needed by the Secretary to carry out her responsibility to determine if incentives are warranted. Without such information, an estimate of the effect of such incentives on consumer demand and Federal budget costs is hypothetical at best. Accordingly, we recommend that no action be taken on incentives until the need for, and methods and costs of appropriate incentive programs can be determined during the latter part of the demonstration program.

Senator Garn. I think we will go ahead with the other witnesses and then get back to questions when the chairman is able to be here.

STATEMENT OF JOHN A. HILL, DEPUTY ADMINISTRATOR, FEDERAL ENERGY ADMINISTRATION

Mr. Hill. Thank you, Senator.

I am pleased to have the opportunity to appear this morning and comment on S. 2932, "The Energy Conservation Act of 1976."

At the outset, let me stress that the administration has steadfastly pursued the objective of energy conservation, which, stated briefly, is to make more prudent and economically efficient use of our energy resources. We have undertaken this effort with care, due to the pervasive influence of energy not only on our economy, but also on our whole way of life. There are numerous existing opportunities for improving the efficiency of energy use, particularly within existing residential and nonresidential buildings and industrial plants, which are the focus of this proposed legislation.

Some of this conservation potential is being realized as a natural market response to today's higher energy prices, but we know that barriers exist which are likely to delay this adjustment process. The energy efficiency improvements that make sense to homeowners and to managers depend upon a variety of economic factors, the most important being the prices that are paid for energy. In this context, the administration originally proposed measures which would have led to prices that more accurately reflect the true value of energy without a severe shock to the economy. As you know, these measures included decontrol of oil prices, deregulation of the price of new natural gas supplies, and a $2 tax on imported oil to be fully refunded to consumers. We were not successful in securing passage of these measures, and are thus now implementing a phased decontrol of oil prices as provided for under the Energy Policy and Conservation Act (EPCA). We continue to recommend deregulation of new natural gas supplies. Until prices reflect the true value of energy consumed, there will continue to be an inefficient allocation of our domestic energy resources.

In the interim, one means of inducing a more desirable level of investment in energy efficiency improvements is through a temporary financial incentive. As you are aware, the administration is currently supporting this sort of approach for homeowners in two principal forms: first, a residential insulation tax credit for which we expect to provide about $300 million per year for 3 years in credits for homeowners; and second, a weatherization program for low income families, for which we have proposed an authorization of $55 million per year for 3 years.

I would now like to discuss briefly our views regarding several specific provisions of S. 2932.

First, as a general comment on the inclusion of "renewable resources" in the definition of energy conservation in the bill, I submit that there are very sound reasons for making clear conceptual and practical programmatic distinctions between conservation, that is, the more economically efficient utilization of energy, and the promotion of energy technologies such as solar and wind. When these distinctly different concepts are comingled, as they are at the very outset in this bill, it creates several problems. First, the various technologies for conservation and for renewable resources are at different stages of development, and therefore, the timing and type of incentives needed are different. Second, we would want to emphasize that installation of, for example, solar heating in a residence would make sense only after optimum conservation—that is, insulation—measures. I strongly urge that conservation and renewable resources be treated separately. Although the basic principles of solar and other renewable resource technologies are well established, until recently their application has languished as a consequence of their high first cost in comparison with other existing technologies. The administration has proposed $160 million in funding for Federal solar research and development in fiscal year 1977, an increase of 39 percent over the $115 million being spent in fiscal year 1976. Of this 1976 money $24 million is being spent for solar heating and cooling demonstration grants and $44 million is being requested for fiscal year 1977.

If we were to offer a massive stimulus at this time for renewable resources, as this bill proposes, there would be irresistible pressures for turning out whatever could, quite frankly, be slapped together. Widespread dissatisfaction resulting from overzealous claims could severely set back this whole promising venture. Again, I must urge greater restraint. We agree that it is fundamentally a very good idea that will eventually be broadly applied, but we simply must be more realistic in recognizing the practical limits that we face.

Another major objection we have to S. 2932 relates to those provisions of the bill that would establish programs parallel, in many respects, to the State energy conservation program established by the Energy Policy and Conservation Act (EPCA). We believe that the existing State program provides ample latitude to enable the States and FEA to pursue many of the objectives outlined in sections 4 through 6, 11, and 12 of S. 2932. The EPCA not only requires the States to institute five specific conservation initiatives, it also gives all States an opportunity to develop and implement, with Federal assistance, programs geared specifically to their own needs. It also authorizes $150 million for 3 fiscal years and FEA has requested full funding for this program in fiscal year 1977. In fact, the States are already preparing the initial reports required under the act and FEA shortly will publish, for comment, guidelines for the development of State conservation plans. We expect the vast majority of the States to develop and submit plans. In sum, we believe that the establishment of a separate effort or the augmentation of the existing program, at this time, would be unnecessary, unwarranted, and could disrupt our current efforts to make the State program established by the EPCA an effective conservation initiative.

Similarly, we oppose a dramatic expansion of the weatherization program currently embodied in H.R. 8650 before it has even been authorized. We have every reason to believe that this program will be successful, and we have designed it to move expeditiously at a level which we believe practicable. There are, however, significant difficulties in organizing the resources required to insulate as many as 400,000 homes per year. Therefore, any consideration of an expansion of such a program is premature.

The proposed legislation also includes an incentive for the owners of residential buildings to install energy conservation materials. The President proposed an incentive in the form of tax credits solely for conservation improvements in January of 1975. Though the House of Representatives passed a version different from the President's proposal last June, the Senate has yet to act on it.

The bill before us today would amend the title I program now conducted by the Department of Housing and Urban Development to allow for subsidies of energy conservation home improvement loans. For those homeowners who do choose to undertake an energy conservation improvement the current operation of the title I program already allows for loans at interest rates slightly below market rates.

We have examined our previous position on the tax credit in light of the alternative contained in S. 2932, and still believe that the tax credit approach would be a better approach to stimulate immediate action by homeowners. First, we believe the tax credit approach will be more effective in focusing attention on energy efficiency because it employs a mechanism which touches everyone: the tax system. Second, for the majority of homeowners who will consider making conservation investments, the loan application process will be an obstacle to action. Many homeowners will not want to be encumbered with a home improvement debt, especially if they have access to other funds or other systems. We would therefore urge you to work for the speedy passage of the President's proposal.

Finally, I would like to comment on the proposals for providing financial incentives to firms and other institutions which are made in sections 9 and 10 of the revised bill. These proposals are highly complex and could have very far-reaching implications despite the fact that it would be limited to obligation guarantees for large businesses or institutions.

Since receiving the specific revised proposals in the last week of April, we have been conducting an intensive and careful study of these proposals. Based upon these efforts and upon earlier studies bearing on similar kinds of concepts, we can make several observations. First, our studies clearly indicate that energy consuming behavior can be affected through a change in the price of energy relative to other commodities. Moreover, switches from one form of energy to another will be induced as the relative prices among different types of energy are changed. In this respect, the proposed bill is addressing the correct underlying issue; namely, it is attempting to change relative prices and reward more efficient use of energy. We have to be keenly interested in any such proposal.

Due to time limitations it has not yet been possible to reach definitive conclusions on these broad measures. However, I can assure you that they are receiving and will continue to receive very careful consideration. Although these financial incentives might stimulate and accelerate conservation investments, we would like to develop supporting analytical as well as empirical evidence before making specific recommendations.

Let me illustrate just two of the implicit issues in S. 2932 which are being investigated. First, when we divert capital from the available pool to a specific purpose, such as energy conservation, we have to know what alternative investments are being foregone. As you know, this is the basic notion of cost in economic terms, so we really need to have this information.

Second, the benefits from incentives would be only the amount of investment to improve energy efficiency above the level which would otherwise have taken place. Based upon the text of the bill, we would appear to be in agreement on this point; however, the task of defining an operational test for "commercial feasibility" for a large number of classes of potential investors is not a simple undertaking. Yet this is crucial in reaching judgments about the advisability of the proposal.

We do need answers to these kinds of issues in order to reach the important judgments that must be made.

Mr. Chairman, I will be happy to answer any questions you may have at this time.

[Complete statement of Mr. Hill follows:]

STATEMENT OF JOHN A. HILL, DEPUTY ADMINISTRATOR, FEDERAL ENERGY ADMINISTRATION

I am pleased to have the opportunity to comment on the proposed revision of S. 2932, "The Energy Conservation Act of 1976."

At the outset, let me stress that the Administration has steadfastly pursued the objective of energy conservation, which, stated briefly, is to make more prudent and economically efficient use of our energy resources. We have undertaken this effort with care, due to the pervasive influence of energy not only on our economy, but also on our whole way of life. There are numerous existing opportunities for improving the efficiency of energy use, particularly within existing residential and nonresidential buildings and industrial plants, which are the focus of this proposed legislation.

Some of this conservation potential is being realized as a natural market response to today's higher energy prices, but we know that barriers exist which are likely to delay this adjustment process. The energy efficiency improvements that make sense to homeowners and to managers depend upon a variety of economic factors, the most important being the prices that are paid for energy. In this context, the Administration originally proposed measures which would have led to prices that more accurately reflect the true value of energy without a severe shock to the economy. As you know, these measures included decontrol of oil prices, deregulation of the price of new natural gas supplies, and a $2 tax on imported oil to be fully refunded to consumers. We were not successful in securing passage of these measures, and are thus now implementing a phased decontrol of oil prices as provided for under the Energy Policy and Conservation Act (EPCA). We continue to recommend deregulation of new natural gas supplies. Until prices reflect the true value of energy consumed, there will continue to be an inefficient allocation of our domestic energy resources.

In the interim, one means of inducing a more desirable level of investment in energy efficiency improvements is through a temporary financial incentive. As you are aware, the Administration is currently supporting this sort of approach for homeowners in two principal forms: first, a residential insulation tax credit which we expect to provide about $300 million per year for three years in credits for homeowners; and second, a weatherization program for low income families, for which we have proposed an authorization of $55 million per year for three years.

I would now like to discuss briefly our views regarding several specific provisions of S. 2932.

First, as a general comment on the inclusion of "renewable resources" in the definition of energy conservation in the bill, I submit that there are very sound reasons for making clear conceptual and practical distinctions between conservation, that is, the more economically efficient utilization of energy, and the promotion of energy technologies such as solar and wind. When these distinctly different concepts are comingled, as they are at the very outset in this bill, it creates several problems. First, the various technologies for conservation and for renewable resources are at different stages of development, and therefore, the timing and type of incentives needed are different. Second, we would want to emphasize that installation of, for example, solar heating in a residence would make sense only *after* optimum conservation (i.e., insulation) measures. I strongly urge that conservation and renewable resources be treated separately. Although the basic principles of solar and other renewable resource technologies are well established, until recently their application has languished as a consequence of their high first cost in comparison with other existing technologies. The Administration has proposed $160 million in funding for federal solar research and development in FY 77, an increase of 39 percent over the $115 million being spent in FY 76. Twenty-four million dollars of this 1976 money is being spent for solar heating and cooling demonstration grants, and $44 million is being requested for Fiscal Year 1977.

If we were to offer a massive stimulus at this time for renewable resources, as this bill proposes, there would be irresistible pressures for turning out whatever could, quite frankly, be slapped together. Widespread dissatisfaction resulting from overzealous claims could severely set back this whole promising venture. Again, I must urge greater restraint. We agree that it is fundamentally a very good idea that will eventually be broadly applied, but we simply must be more realistic in recognizing the practical limits that we face.

Another major objection we have to S. 2932 relates to those provisions of the bill that would establish programs parallel, in many respects, to the State Energy Conservation Program established by the Energy Policy and Conservation Act (EPCA). We believe that the existing State Program provides ample latitude to enable the States and FEA to pursue many of the objectives outlined in Sections 4 through 6, 11 and 12 of S. 2932. The EPCA not only requires the States to institute five specific conservation initiatives, it also gives all States an opportunity to develop and implement, with Federal assistance, programs geared specifically to their own needs. It also authorizes $150 million for three Fiscal Years and FEA has requested full funding for this program in Fiscal Year 1977. In fact, the States are already preparing the initial reports required under the Act and FEA shortly will publish, for comment, guidelines for the development of State conservation plans. We expect the vast majority of the States to develop and submit plans. In sum, we believe that the establishment of a separate effort or the augmentation of the existing program, at this time, would be unwarranted and could disrupt our current efforts to make the State Program established by the EPCA an effective conservation initiative.

Similarly, we oppose a dramatic expansion of the Weatherization program currently embodied in H.R. 8650 before it has even been authorized. We have every reason to believe that this program will be successful, and we have designed it to move expeditiously at a level which we believe practicable. There are, however, significant difficulties in organizing the resources required to insulate as many as 400,000 homes per year. Therefore, any consideration of an expansion of such a program is premature.

The proposed legislation also includes an incentive for the owners of residential buildings to install energy conservation materials. The President proposed an incentive solely for conservation improvements in January of 1975. Though the House of Representatives passed a version different from the President's proposal last June, the Senate has yet to act on it.

The bill before us today would amend the Title I program now conducted by the Department of Housing and Urban Development to allow for subsidies of energy conservation home improvement loans. For those homeowners who do choose to undertake an energy conservation improvement the current operation of the Title I program already allows for loans at interest rates slightly below market rates. We have examined our previous position on the tax credit in light of the alternative contained in S. 2932, and still believe that the tax credit approach would be a better approach to stimulate immediate action by homeowners. First, we believe the tax credit approach will be more effective in focusing attention on energy efficiency because it employes a mechanism which touches everyone: the tax system. Second, for the majority of homeowners who will consider making conservation investments, the loan application process will be an obstacle to action. Many homwowners will not want to be encumbered with a home improvement debt, especially if they have access to other funds. We would therefore urge you to work for the speedy passage of the President's proposal.

Finally, I would like to comment on the proposals for providing financial incentives to firms and other institutions which are made in sections 9 and 10 of the revised bill. These proposals are highly complex and could have very far-reaching implications despite the fact that it would be limited to obligation guarantees for large businesses or institutions.

Since receiving the specific revised proposals in the last week of April, we have been conducting an intensive and careful study of these proposals. Based upon these efforts and upon earlier studies bearing on similar kinds of concepts, we can make several observations. First, our studies clearly indicate that energy consuming behavior can be affected through a change in the price of energy relative to other commodities. Moreover, switches from one form of energy to another will be induced as the relative prices among different types of energy are changed. In this respect, the proposed bill is addressing the correct underlying issue; namely, it is attempting to change relative prices and reward more efficient use of energy. We have to be keenly interested in any such proposal.

Due to time limitations it has not yet been possible to reach definitive conclusions on these broad measures. However, I can assure you that they are receiving and will continue to receive very careful consideration. Although these financial incentives might stimulate and accelerate conservation investment, we would like to develop supporting analytical as well as empirical evidence before making specific recommendations.

Let me illustrate just two of the implicit issues in S. 2932 which are being investigated. First, when we divert capital from the available pool to a specific purpose, such as energy conservation, we have to know what alternative investments are being foregone. As you know, this is the basic notion of cost in economic terms, so we really need to have this information.

Second, the benefits from incentives would be only the amount of investment to improve energy efficiency above the level which would otherwise have taken place. Based upon the text of the bill, we would appear to be in agreement on this point; however, the task of defining an operational test for "commercial feasibility" for a large number of classes of potential investors is not a simple undertaking. Yet this is crucial in reaching judgements about the advisability of the proposal.

We do need answers to these kinds of issues in order to reach the important judgements that must be made.

Mr. Chairman, I will be happy to answer any questions you may have at this time.

Senator **Garn**. Mr. Wettach.

STATEMENT OF JOHN T. WETTACH, ASSISTANT ADMINISTRATOR FOR FINANCE AND INVESTMENT, SMALL BUSINESS ADMINISTRATION

Mr. **Wettach**. Mr. Chairman, it is a pleasure for me to appear today and discuss the implications of S. 3424 for small business.

The proposed legislation includes a variety of programs that would insure loans, provide loan subsidies, guarantee loans and provide grants to State government. These programs are designed to facilitate energy conservation investments that are made in existing housing, nonresidential buildings, industrial plants and small business concerns.

We will defer to the comments made by the Federal Energy Administration and Department of Housing and Urban Development concerning the desired strategy for conserving energy and about the question of whether the programs imposed in S. 3424 fit into the strategy at this time. We will focus our comments on the proposals of S. 3424 that would provide financial assistance for small business concerns.

For assistance to small business S. 3424 would utilize the Small Business Administration and establish a new loan program, with the Federal Government participating in or partially guaranteeing bank loans and in addition paying 20 percent of the principal amount of the loan to the bank, but not to exceed $5,000. This is apparently intended to be SBA's only loan program which does not provide for direct loans.

Section 9 of S. 3424 entitled "Energy Conservations Assistance for Small Business Concerns," details concerning this which I will not read but which are included in our testimony.

Section 4(c)(1) of the Small Business Act would be changed to establish a new revolving fund for this program.

One point we would make concerning section 9 involves the phrase "* * * which a lending institution finds to be consistent with the provisions of an approved State energy conservation implementation program."

We believe that it would be very difficult to require the participating banks to determine that the proceeds of a loan would be used to implement an energy conservation measure which is consistent with the provisions of an approved State energy conservation implementation program. It would be more appropriate to have such a determination made by a State agency which could certify that the energy conservation measure is consistent with the State program prior to any request for a loan from SBA. Even this mechanism would be unduly cumbersome creating a great deal of paperwork and administrative costs at the State level.

Another question with regard to section 9 is concerned with the phrase "* * * the administration shall pay the lending institution an amount not to exceed 20 percent of the principal thereof or $5,000 whichever is less" (or up to 50 percent of the "amount otherwise provided for" under specified conditions) in the form of a direct payment.

Such direct payments or subsidies would constitute a new relationship between lending institutions and the Small Business Administration. Depending on the volume of loans processed under this section and the size of such loans, this could be quite an expensive program. Further, the mechanics of supervising and paying such sums to banks and other lending institutions which will process these energy conservation loans will have to be worked out carefully to prevent abuses, mistakes, and unwarranted payments.

While we do not consider these insurmountable obstacles, subsidies and direct payments to lending institutions represent a departure from SBA's normal bank relationship and lending procedures.

Authorized to be appropriated for carrying out the provisions of the new section 7(1) are sums not to exceed $300 million. The authorization for payments to lending institutions under section 7(1) is $60 million.

Mr. Chairman, this concludes my prepared statement. I would be pleased to answer any questions you or the committee may have.

[Complete statement follows:]

STATEMENT OF JOHN T. WETTACH, ASSOCIATE ADMINISTRATOR, SMALL BUSINESS ADMINISTRATION

Mr. Chairman, it is a pleasure for me to appear today and discuss the implications of S. 3424 for small business.

The proposed legislation includes a variety of programs that would insure loans, provide loan subsidies, guarantee loans and provide grants to State government. These programs are designed to facilitate energy conservation investments that are made in existing housing, non-residential buildings, industrial plants and small business concerns.

We will defer to the comments made by the Federal Energy Administration and Department of Housing and Urban Development concerning the desired strategy for conserving energy and about the question of whether the programs imposed in S. 3424 fit into the strategy at this time. We will focus our comments on the proposals of S. 3424 that would provide financial assistance for small business concerns.

For assistance to small business S. 3424 would utilize the Small Business Administration and establish a new loan program, with the Federal Government participating in or partially guaranteeing bank loans and in addition paying 20% of the principal amount of the loan to the bank, but not to exceed $5,000. This is apparently intended to be SBA's only loan program which does not provide for direct loans.

Section 9 of S. 3424 entitled "Energy Conservation Assistance for Small Business Concerns" provides:

"Section (7) of the Small Business Act (15 U.S.C. 636) is amended by adding at the end thereof the following new subsection.

(1) the Administration also is empowered to make loans (in cooperation with banks or other lending institutions through agreements to participate on an immediate or deferred basis) to assist any small business concern implementing

any energy conservation measure which a lending institution finds to be consistent with the provisions of an approved state energy conservation implementation program (as established pursuant to the Energy Conservation Act of 1976). The amount of any such loan may include the cost of an energy audit carried out in accordance with the applicable such State program. Any such loans shall conform to the other provisions of this Act, to the extent not inconsistent with the provisions of this subsection, and shall have a maximum term of not to exceed 20 years. With respect to any such loans, the Administration shall pay the lending institution an amount not to exceed 20% of the principal thereof of $5,000, whichever is less. Notwithstanding the preceding sentence, if the Administration makes a finding in writing, together with reasons therefor, that the cost of implementing energy conservation measures in any specified State is so high (because of its isolated geographic location or other unique features) that substantial energy conservation implementation is unlikely to take place in the absence of additional financial incentives, the amount required to be paid by the Administration pursuant to such sentence shall be increased by no more than 50 percent of the amount otherwise provided for, if the lending institution certifies that the State in which such loan is made has paid, or is obligated to pay, to such lending institution an amount equal to the additional such amount to be paid by the Administration: Provided, That the additional such amounts, in the aggregate for any such such specified State, shall not exceed $2,000,000 in any fiscal year. Any amounts paid to a lending institution under this subsection shall be credited by the institution to reduce the principal amount of the loan or applied to reduce the amount of interest payable in connection with such loan."

Section 4(c)(1) of the Small Business Act would be changed to establish a new revolving fund for this program.

One point we would make concerning Section 9 involves the phrase "* * * which a lending institution finds to be consistent with the provisions of an approved state energy conservation implementation program."

We believe that it would be very difficult to require the participating banks to determine that the proceeds of a loan would be used to implement an energy conservation measure which is consistent with the provisions of an approved state energy conservation implementation program. It would be more appropriate to have such a determination made by a state agency which could certify that the energy conservation measure is consistent with the state program prior to any request for a loan from SBA. Even this mechanism would be unduly cumbersome creating a great deal of paperwork and administrative costs at the State level.

Another question with regard to Section 9 is concerned with the phrase "* * * the Administration shall pay the lending institution an amount not to exceed 20 percent of the principal thereof or $5,000 whichever is less" (or up to 50 percent of the "amount otherwise provided for" under specified conditions) in the form of a direct payment. Such direct payments or subsidies would constitute a new relationship between lending institutions and the Small Business Administration. Depending on the volume of loans processed under this Section and the size of such loans, this could be quite an expensive program. Further, the mechanics of supervising and paying such sums to banks and other lending institutions which will process these energy conservation loans will have to be worked out carefully to prevent abuses, mistakes, and unwarranted payments.

While we do not consider these insurmountable obstacles, subsidies and direct payments to lending institutions represent a departure from SBA's normal bank relationships and lending procedures.

Authorized to be appropriated for carrying out the provisions of the new Section 7(1) are sums not to exceed $300,000,000. The authorization for payments to lending institutions under Section 7(1) is $60,000,000.

Mr. Chairman this concludes my prepared statement. I would be pleased to answer any questions you or the Committee may have.

The CHAIRMAN. Before I move on to Mr. Bradley—I take it Mr. Bradley hasn't testified yet; is that correct? Let me ask you, Mr. Wettach, I'm a little bit puzzled by your statement as to whether or not you and the SBA, the administration in general, supports this legislation or opposes it?

Mr. WETTACH. The question of whether we support it, we really defer to the other two agencies which are more involved. We see some problems, sir, in connection with the $5,000 payment. It reminds us of the $5,000 forgiveness provision that existed at one time in our disaster loans which was considered unsatisfactory.

The CHAIRMAN. Then you oppose that particular provision?

Mr. WETTACH. We are concerned over that particular provision, yes.

The CHAIRMAN. But you don't oppose it?

Mr. WETTACH. No, sir. We don't oppose nor support it.

The CHAIRMAN. All right. Mr. Bradley. Who has not testified? There are four gentlemen here. I've got a list of four witnesses.

Mr. ORLEBEKE. The gentlemen on my left, Mr. Chairman, is Mr. Truslow from HUD, Fred Truslow.

The CHAIRMAN. What's your job at HUD?

Mr. TRUSLOW. I'm Deputy Assistant Secretary of HPMC and as far as this bill is concerned HPMC is where the title I home improvement loan program, falls.

The CHAIRMAN. Do you have a statement, sir?

Mr. TRUSLOW. No, I don't.

The CHAIRMAN. All right. Then I take it the three witnesses who testified are Mr. Orlebeke and Mr. Hill and Mr. Wettach. Mr. Bradley is not present.

Now let me ask you—and I will ask Mr. Orlebeke to lead off, it's frequently argued improved insulation will pay for itself in a short period. Why, if this is true, do we need a subsidy or a tax credit incentive?

Mr. ORLEBEKE. Well, we believe, as we have indicated in the testimony, that the tax credit would stimulate additional investment in insulation which would have an overall favorable impact on energy conservation.

The CHAIRMAN. But if the payoff is there, if people are going to gain by putting it in, why would the additional little gimmick on the tax do more than deprive the IRS of revenue they would otherwise derive and need obviously?

Mr. ORLEBEKE. Well, we think that there is still a substantial part of the housing stock which would benefit from additional energy saving materials which are readily available on the market.

The CHAIRMAN. Do you think everybody ought to be eligible for that assistance?

Mr. ORLEBEKE. Under the tax incentive approach, yes.

The CHAIRMAN. Regardless of income?

Mr. ORLEBEKE. Yes. That's the proposal.

The CHAIRMAN. Now the administration and the sponsors of this legislation differ on the issue of tax credits versus loans with direct subsidies. I haven't seen an analysis of this issue. Could you tell us about your position on tax credits versus loans with direct subsidies?

Mr. ORLEBEKE. Well, we believe, and we concur in the testimony of Mr. Hill, that the tax credit approach is the preferable route because of its simplicity, because of its immediate impact, and because——

The CHAIRMAN. One weakness of the tax credit approach of course, is that the people who will benefit from the tax credit approach are people with substantial income who pay taxes. People with modest incomes or very low incomes who wouldn't pay income taxes would get little or no benefit from that and they are the ones who one would think would be most needy and where a direct subsidy program or a loan program might be more sensible.

Mr. ORLEBEKE. We agree with you on that point and that's why the administration is supporting the weatherization program for low income people in its proposed energy conservation legislation.

Another advantage, by the way, of the tax credit approach is that it does come under the administration of the IRS and it is therefore easier to guard against fraud than it would be if we involve banking institutions in making certifications and so forth.

The CHAIRMAN. Has the IRS indicated the cost of the tax credit? What do they estimate?

Mr. ORLEBEKE. I'm not sure, Senator. Perhaps one of my associates here knows.

The CHAIRMAN. Staff tells me they heard it's something like $300 million a year. Is that about right?

Mr. HILL. Was your question regarding what the tax loss to the Treasury would be or on the benefit to the taxpayer?

The CHAIRMAN. That's right.

Mr. HILL. About $300 million a year is correct, and we estimate that anyone who pays at least $50 a year in taxes would benefit from the tax credit proposal, would receive real benefits from it.

The CHAIRMAN. Do you share the opinion expressed by Mr. Orlebeke that both tax credits and loans are desirable and necessary? Do you support both parts of that, Mr. Hill?

Mr. HILL. I think we believe, Senator Proxmire, that tax credits are the desirable short term and temporary kind of financial incentive to try to speed up the process of insulating existing structures and try to shorten the payout time, if you will, and try to get it, particularly that large number of houses that turn over every year where people might not make investments if they are not going to be there in a couple years, to speed up the repayment rate in that sense.

I agree with Mr. Orlebeke that the tax credit approach is certainly more efficient, we think. It's an existing system. It would not require any additional infrastructure to support it, and it would have a more immediate impact, whereas the loan program would require additional——

The CHAIRMAN. Let me read what the Commerce Committee, which held hearings on this earlier and issued a report dated May 13, just the other day—what their views were on tax credit, and I'd like your response to it because it seems to me it's a pretty strong and persuasive criticism.

They say, unfortunately, the tax credit approach also has several disadvantages: (*a*) Tax credits provide little or no financial incentive for individuals or businesses with little or no tax liability, (*b*) tax credit provides no incentive at all for tax-exempt institutions such as churches and schools, (*c*) the financial incentive associated with the tax credit may not be available at the time of greatest need, and (*d*) under a tax credit system, there's a relatively greater potential for fraud because there's less control over how energy conservation expenditures are made. Finally, tax credits increase tax expenditures rather than direct Federal expenditures and thus are not subject to direct congressional review each year as part of the appropriations process.

That looks to me like a reasonably strong indictment of going that route, and it's a $300 million loss to the Treasury. What's your response to that, Mr. Hill?

Mr. **Hill.** OK. It is a fairly strong indictment. I would take exception, however, with parts of it on the grounds that they may not necessarily be true. I think you would have to also compare any problems with the tax credit to problems you might have with the loan program itself and decide which has the least problems or the greater benefits. The tax credits provide little or no financial incentive for the individuals or businesses with little or no tax liability. They clearly provide no incentive to individuals with no tax liability, and that's why we propose the weatherization program. It does, however, in our view, provide incentives for everybody who pays at least $50 a year in taxes or more. There's a positive tax credit for anybody above that level, and that probably involves nearly everyone in the country with the exception of the very small number at the very end of the range.

The **Chairman.** Isn't it true that the tax shelters are so complicated there's so many deductions, and so most people just throw up their hands and—a few people do use it, people who work for H. & R. Block and lawyers and economists—but the overwhelming majority of people are just overwhelmed by all the complicated elements involved in the Tax Code. Why wouldn't it therefore be logical to expect that those who have a significant income and pay taxes can obviously see that they gain quickly by insulation, that they reduce their heating bills and pay for the insulation within a relatively few months, No. 1; and then, No. 2, provide for those who obviously need the assistance because they have low income, with a loan and subsidy program?

Mr. **Hill.** I don't think the Tax Code, at least in my own evaluation, is that particularly complicated, at least in terms of tax credits. The average taxpayer, I think, has a pretty good idea of what credits he will receive each year, and a tax credit is a fairly simple proposition to add or subtract to the code.

Regarding the probable loan, I think you have to recognize the fact that by and large most insulation or energy conservation retrofit improvements that are economic are fairly inexpensive investments. They are in the range of $300 to $400. They are not the kinds of investments that people normally go to a bank to get financing for, with all the paperwork and everything that entails. In fact, in the State of Michigan, one of the utilities there started such a program, financing on the gas bill any insulation investments in the people's houses at the rate of 1 percent a month. They found that of the 100,000 people who insulated their homes after this program was started, only 500 utilized this easily available financing mechanism attached to their gas bill.

So our judgment is, if only 500 of 100,000 used the financing or loan program, if you will, which was just a part of their gas bill, you're not going to have any more than that go to the bank and fill out a separate application and go through the loan process, particularly for these small investments. In our view, the tax credit is much simpler, is not involved in all of that activity, is an existing system which every taxpayer we think knows to some degree, and if he could get the immediate writeoff it should induce him to insulate either sooner or in greater numbers than will otherwise be the case.

The CHAIRMAN. I may have some questions later. Senator McIntyre?

Senator McINTYRE. Thank you, Mr. Chairman.

Mr. Hill, one thing you said in your statement that people should only install solar energy after insulating. When building a new home, isn't it best to do both together rather than having to tear up the walls and roof and construction?

Mr. HILL. Well, in new homes, I think that would be the case. I think the point I'm trying to make there, Senator McIntyre, is that solar energy technologies are not very wise investments unless they, are accompanied by such things as insulation and storm windows because of their relative inefficiency given the state of the art.

Senator McINTYRE. Well, this bill would hit both of those, wouldn't it?

Mr. HILL. It definitely would hit both.

Senator McINTYRE. It would try to get more people to insulate their homes for energy conservation and try to bring along the solar energy which we in New England think has a potential for us. We don't think it's going to heat us all the time, but we think it's going to cut down on the fuel bills.

Mr. HILL. I think it will help, but we are trying to stimulate people to take energy conservation steps. We suggest the loan program would not likely end in that result in any large numbers. In the case of solar and wind, our concern is if we overstimulate that particular technology right now and make a massive credit available for homeowners to go buy it, they're going to be buying in the near term technologies that are still evolving, if you will. There's also going to be a tremendous incentive, given the size of that credit for solar and wind, for sloppy operators to get in the business and push all kinds of things on homeowners.

In our view, it's important to wait and have the ERDA program and the HUD program in this area develop not only experience but also standards for solar type equipment, either industry standards or Federal standards. So when a consumer goes out to buy, he has some idea what he's buying. If you overstimulate by putting a massive carrot out for that kind of technology before those basic things have happened, it's our fear that there will be many people selling solar systems that are not adequate, and if that happens you're going to set back the whole solar effort.

Senator McINTYRE. Well, I think you're absolutely right that in this industry that's budding if we're not careful there are going to be some fly-by-nights and there are going to be some bad ones and we are going to try to get home to the solar groups that are forming all over the country that they have got to watch out for these bad outfits. I embrace the idea that we must move slowly on solar energy. At the same time, you say technology is evolving, but technology is already here. Our big problem is trying to get marketing and get enough of these produced so the prices will begin to drop so the consumer can see it's cost effective right now. I'm thinking in terms of subsidizing this program. That's why I'm very, very strongly in favor of this bill and when I get somebody looking down my neck because we're subsidizing I just think of what we have done with nuclear energy and where we are with that right now.

So let me ask you, is it not true that investments in conservation save more energy than is produced by comparable investments in new energy supplies and considerably reduced environmental risks?

Mr. HILL. That's true in some cases and not true in others.

Senator McINTYRE. Give me the ones that it's not true.

Mr. HILL. I'll be glad to take you through a series of case studies. But it's clear that, for example, in some manufacturing firms, certain investments in energy conservation are cheaper on $1 per barrel basis than buying the additional barrel of oil, whereas other investments that they might make are not cheaper; that is, it's cheaper to go buy the oil. You have to look at this almost on a case-by-case basis.

Senator McINTYRE. Well, would you cite for me a case or two where the conservation would not be as profitable?

Mr. HILL. I would be glad to provide for the record, Senator, several cases that we have looked at that I have seen. For example, several companies have looked at a particular technology and analyzed its cost-benefit ratio. It has an equivalent oil price of around $5 per barrel. That same company looking at other technologies——

Senator McINTYRE. You say $5 a barrel?

Mr HILL. Right. They are buying that oil basically for $5 as opposed to the current $12, by making the investment in that technology, whereas that same company has other investments where it might be paying as much as $15 or $16 a barrel of oil if they made the investment and amortized it and discounted it. It's not true in every case that it's cheaper to conserve than it is to use, although it's certainly true in my mind in more cases than are being applied today.

Senator McINTYRE. Can you give us some examples for the record?

Mr. HILL. All right.

Senator McINTYRE. I was glad to see Dr. Seamans, head of ERDA, is talking in terms of energy conservation and solar energy, two areas we thought from our standpoint that were left at the gate when the research and when the moneys were put down on the line to help these programs along. Energy conservation is one that we are letting slip away from us.

Let me ask you this question. Will investments in conservation have a more positive long-run or short-run effect on unemployment than investments in capital intensive new energy supplies?

Mr. HILL. To my knowledge, Senator, there's not been any comprehensive study of that particular question. Again, I might look on a case-by-case basis, but no one has assessed in a comprehensive way that particular question. I really could not provide any information on that. We do know, for example, that the shift to smaller cars may have a negative impact on employment in Detroit over time which would be a move toward energy conservation. On the other hand, it's clear if people start insulating their homes it's going to have a positive impact on the insulation industry and on the people in the industry that installs that insulation. But I don't think anybody has completed a major input-output study of the whole question that would allow me to give a specific answer to that question.

Senator McINTYRE. Well, I don't want to embark the Government on any more studies than they are now doing, but I do think it's important that energy conservation take its proper place in our whole picture and I think FEA and ERDA in the past have let it slide in favor of nuclear and other more sophisticated and more attractive——

Mr. HILL. I might add, Senator, that I don't think we could agree more. We had proposals up here last year that would have had conservation impacts of roughly 3 million barrels a day. That was very large in terms of energy conservation initiatives. We were almost totally unsuccessful in getting any of those propositions through last year. We couldn't agree more that a major amount of the work that's undone is in the area of conservation, but we didn't have much success here last year.

Senator MCINTYRE. Well, probably what we need is another shutdown, another embargo, for the realization to hit the American people that we're not out of the woods by any means.

Mr. HILL. I agree.

Senator MCINTYRE. But I think it's your job, FEA and ERDA, to keep crying about this and keep yelling. I was amazed to see the other day that the public is turning around to the big automobiles again. That's another subject though.

Let me ask you one last question. I understand that one FEA estimate says at least $12 billion could be spent cost effectively just for residential energy conservation in the next several years. How much is the public spending and will it reach this level in the next few years without a government incentive?

Mr. HILL. Senator, I don't have any data on what is currently being spent nationally regarding energy conservation by either homeowners or by industry. We do have an industrial reporting program that is getting underway for the 10 largest energy consuming industries which will develop some of that information over time, but I have no estimate right now as to what the Nation is spending today or over the next 12 months or even the past 12 months on energy conservation. I can provide information on how much they spent for insulation materials last year but in terms of other technologies or other efforts such as changing their assembly lines and their processes, we don't have that data. We do believe, however, that that $12 billion estimate is generally a good figure. In fact, it may be somewhat on the conservative side in terms of what could be done over the next several years.

Senator MCINTYRE. Well, I understand that you will furnish some sort of an answer for the record because I think a positive answer to this question would be helpful because if we could reach a $12 billion level with government incentives I think it would be worthwhile and I think it's the direction this bill is aiming in.

[The following was submitted for the record:]

FEDERAL ENERGY ADMINISTRATION,
OFFICE OF THE DEPUTY ADMINISTRATOR,
Washington, D.C., May 24 1976.

Hon. WILLIAM PROXMIRE,
U.S. Senate,
Washington, D.C.

DEAR SENATOR PROXMIRE: Three of the questions you raised in the course of my May 19, 1976, testimony on S. 2932 were: (1) What is the average cost of an energy audit of a residence; (2) How much is currently being spent by homeowners on insulation; and (3) What are the relative advantages and disadvantages of the loan and the tax credit approaches to residential insulation?

With respect to your first question, the cost of home energy audits naturally varies widely. The Project Conserve program which the Federal Energy Administration (FEA) and the State of Massachusetts are currently implementing provides individualized information to homeowners based on a questionnaire which the homeowner fills out. This type of simple, limited audit can be provided at a cost of less than one dollar per home. In order to give you a working knowledge of the information provided through our Project Conserve, I am enclosing the standard questionnaire which can be processed for a home in the Washington area. If you will complete the form and return it to Charles R. Ince, Jr., Associate Assistant Administrator, Buildings Programs, Energy Conservation and Environment, Federal Energy Administration, Washington, D.C. 20461, we will return the results for your inspection.

A more detailed and precise audit would involve visits to homes by people trained to measure the various energy efficiencies of homes including the condition of windows, levels of insulation, and operation of heating and cooling equipment. This type of audit is being conducted by private firms and by various utilities, and is estimated to cost $10 to $75 or more per home depending on the thoroughness of the audit.

Another technique involves using infrared equipment to detect heat leaks from homes. The manufacturers of this equipment report that those private concerns which are providing this service to homeowners are charging between $70 and $100 per home for a full house survey. This type of survey provides only qualitative information about heat losses, rather than the quantitative estimates available from other audits, but it is useful in detecting problems which are not otherwise apparent. A full home audit including an infrared survey could thus cost nearly $200.

With regard to your second question, surveys of homeowners by *Building Supply News* revealed that in 1974 their spending for storm windows, storm doors and additional insulation for existing homes totalled $720 million. Although *Building Supply News* has not yet readied figures for 1975, we have looked at other sources and estimated that spending for retrofit of existing homes with storm windows, storm doors and additional insulation in 1975 and 1976 is running at an annual rate of $1.27 billion. Of this, approximately $550 million per year is being spent on storm windows, $260 million per year on storm doors, and $450 million per year on additional insulation of all types.

The FEA has earlier estimated that there are at least 18 million homes which are inadequately insulated. We view this figure as a minimum estimate, and expect that the actual number of single family homes which could benefit economically from energy conservation improvements is nearly twice as large. FEA and the Treasury have estimated that the revenue loss from the 30 percent insulation tax credit would be approximately $300 million per year for each of the three years it is available.

With regard to your final question, one of the chief arguments put forth in favor of a loan subsidy program instead of a tax credit has been that the loan is more useful to those families who either pay no tax or do not have the funds to pay for conservation investments while waiting for the tax refund. A quick analysis of 1976 tax forms reveals that a family of four can have an income as low as $6850 and still be eligible for the full benefit of the $150 tax credit (at $50 per year for three years.).

In most States, families with incomes below this level will be eligible for the Weatherization Program to be authorized by H.R. 8650.

Those homeowners who wish to make conservation investments, but are short of cash may, under present law, apply for Federal Housing Administration Title I loans.

Subsidies would not make these loans any more available than a tax credit, even for lower income families. The cash short family would still be required to meet eligibility requirements for a home improvement loan to receive the subsidy. Banks make the decision on the credit-worthiness of borrowers who apply for Title I loans, and it is not likely that their criteria would change if subsidies were offered.

For those homeowners who have funds available for an improvement, the loan subsidy approach would probably be less attractive than a tax credit. In order to receive the subsidy, the homeowner would have to apply for a loan, at a higher cost than using his or her own funds. Though the loan subsidy approach would encourage larger conservation expenditures per homeowner, we believe that broader promotion of the Title I program, in combination with the tax credit, would achieve the same result. Moreover, Secretary Hills has already directed that such a promotion campaign be prepared.

It was a pleasure to appear before your Committee. Thank you for your continuing interest in the passage of an effective National program for energy conservation.

Sincerely,

JOHN A. HILL,
Deputy Administrator.

Mr. HILLS. Thank you, Senator McIntyre.

Senator MCINTYRE. Mr. Wettach, any large-scale program of incentives, whether tax credits or subsidies for insulation, must deal with the problem of fraud and the problem of shoddy work and so forth. Anybody who wants to get a tax credit or get a subsidy for that matter may simply go through the motions of providing a home improvement that might really not improve much insulation, if any. How do you police this? How do you prevent the fraud and how do you make sure the Government is going to get its money's worth, that we're going to get the kind of insulation we need?

Mr. WETTACH. This is one of our concerns, Senator. You're probably aware that the WBA has not been involved in loans to homeowners specifically other than under the disaster programs and so our direct involvement has been with the small businessman. However, you can draw a parallel, whether it's a small business or a home that's getting the service.

As to how we would police the quality of work, some system would simply have to be developed where we would make inspections with our field personnel or others hired on contract.

The CHAIRMAN. This is a massive program involving hundreds of thousands and maybe millions of families. You have a very limited staff. You can't do this except on a very limited spot check basis.

Mr. WETTACH. Yes, sir. That's the reason that we have opposed legislation previously that would have put the SBA in a position of lending to homeowners specifically because we simply do not have the staff with 4,100 employees nationwide to police it. But if we were involved in the program, we would have to develop a formula whereby we are certain if we make a payment that it is justified.

The CHAIRMAN. Mr. Hill, what would be your answer to that, preventing fraud and preventing shoddy work and making sure that you do get insulation and reduction in consumption?

Mr. HILL. Well, I think it would probably have to be, Mr. Chairman, a combination of different efforts to try to insure that there was a minimization of fraud. Under either a loan program or a tax credit, I think you would have to have clear documentation that the insulation material was actually purchased and you would have to have sufficient staff in the administering agency to insure that those documents were in fact a part of the loan agreement or the tax credit claim and that there were some audits.

The CHAIRMAN. The tax credit, would that be up to the IRS to police that?

Mr. HILL. It would be up to the IRS, like they police current deductions.

The CHAIRMAN. Is there any indication from them on their attitude on this, how they feel?

Mr. Hill. There would be no additional requirements. It would just be a part of their regular audit process and they would audit for this like they audit all returns. Some people would be audited each year and others wouldn't, but if somebody claimed a deduction they would have to have evidence to indicate that they had in fact purchased that insulation at the price specified. I think you would have to rely to some degree on the homeowners. While the Government would have to police whether or not the homeowner was actually making the payment for what he said he was making the payment for, the homeowner would have to be his own policeman in terms of whether or not he was getting good quality insulation—if he paid for 6 inches, did he get 6 inches, did he get the best possible price and so forth. The Government really could not, I don't think, under any kind of program get involved in that kind of policing.

The Chairman. I notice, Mr. Hill, you argue that we should defer action on S. 2932—and I'm speaking now about the $10 billion loan guarantee—until we know what alternative investments would be foregone. In other words, what would it displace, what would be the crowding out effect? Can you document that a little bit?

Mr. Hill. Yes; I can. As you know, Mr. Chairman, very well, any time you give an incentive for one type of investment, you change the relative likelihood of all other investments, because we are basically dealing with a fixed amount of capital investment each year. It can go up a little bit and go down, but there is a total capital investment made by society, period. If you make part of that more attractive by an obligation guarantee program or by tax credit, it would clearly shift capital in the direction that you're making more attractive.

The Chairman. On the point Senator McIntyre was stressing so vigorously, isn't it true that we do have a very serious energy problem here that probably is the most serious social problem and economic problem we have and so shouldn't it be given that kind of priority? If we crowd out something else, OK; that's the price we pay.

Mr. Hill. Part of our problem is you may be adding a financial incentive in some cases for somebody to do something that they were going to do already and, in that sense, in our judgment, at least in FEA, you have a misallocation of capital in society.

The Chairman. If they're going to do it anyway, however, you're going to have that allocation of capital whether you have this legislation or not. That would be an argument for foregoing the tax credit, I would think, but it wouldn't be an argument for crowding out.

Mr. Hill. I think it's an argument for foregoing an obligation guarantee program until we have better data about how much investments, for example, will be made and how much will not be made and how much of that latter category we'd like to stimulate because it was economic.

The Chairman. Mr. Hill, I think you're pretty vulnerable on this because you speak for an administration that's just testified in the last couple weeks for a $100 billion energy independence authority that they want now, that they want us to go with, $100 billion, without any analysis of what would be crowded out. This is only $10 billion, 10 percent of that.

Mr. Hill. I think we're talking, Senator——

The CHAIRMAN. What alternative investments would be crowded out by the Rockefeller bill?

Mr. HILL. We're talking about two very different programs. In that program, the $100 billion proposal is basically aimed at trying to stimulate or enhance the application of new technologies, both supply and conservation technologies. That's to try to get people to do something——

The CHAIRMAN. The purpose is different but I think we have a very strong documentation that conservation may be the best route; but the purpose is different, as you say. They want more production rather than conservation. At any rate, the crowding out would be the same kind of a problem.

Mr. HILL. No. I think we're talking about different things, Senator, in that that bill is not aimed at, for one thing, existing technologies. It would not pay people to install something that is already commercially proven and it would also apply to both supply technologies and conservation.

The CHAIRMAN. That bill was aimed expressly at existing technologies. They say it's not a research bill. We have a separate research program and that bill expressly says that this would fund existing technologies. For example, one of the programs, the two big programs, Mr. Rockefeller said that he would expect this program to fund are: (1) The atomic energy plants that are already established—we already know the technology works and it's in existence—and (2) a gas pipeline through Canada, which I strongly favor. I think we need that and if this is the only way to get it, maybe I'll support the bill for that purpose.

But, nevertheless, this is existing technologies. There isn't anything new in it.

Mr. HILL. If you look at the bill and the criteria in it you will see the heavy focus of that bill is toward emerging, unproven technologies, particularly in the synthetic fuel area. There is a provision that if there are technologies, such as the Alaska pipeline, that cannot be financed even though they are in the national interest, this program could pick up—under very stringent conditions—those types of investtypes of investments or could help provide assistance to those investments. But the bulk of that program is aimed at emerging technologies that are not economically proven yet or not technically proven, principally in the synthetic fuels area—coal gasification, oil shale and so forth. It's also aimed at conservation technologies in the same sense. It would provide funds for emerging conservation technologies, whereas this bill is aimed at simply providing financial assistance to people to invest in technologies that are already proven technically and economically. It's trying to get a few more people to invest in those than would otherwise be the case.

The CHAIRMAN. I wish you had been here during their testimony by Mr. Zarb and Mr. Rockefeller and by the other witnesses pro and con on this, because it was very, very clear that they are talking about existing technologies in the Rockefeller bill.

At any rate, the point is that you say on page 9 we have to know what alternative investments are being foregone when we pass this bill we are talking about this morning. It seems to me it's just as consistent to say we ought to know what alternative investments are going to be foregone if we pass the Rockefeller proposal.

Mr. Hill. I agree.

The CHAIRMAN. It may well be—since you're asking us to delay this bill until we know what other investments would be foregone, shouldn't we delay the other bill until we have the same kind of information, expecially since it's 10 times as big a bill?

Mr. HILL. I think we already have a considerable amount of that information in regard to the $100 billion authority and as you're looking at a total capital investment energy production activities over the next 10 years——

The CHAIRMAN. If we have a considerable amount of information, what investments would be foregone if we passed the $100 billion Energy Independence Authority?

Mr. HILL. Over the next 10 years this Nation is looking at capital investments in energy production activities of something in excess of $600 billion. It is our conclusion that by and large the $100 billion authority will not add to that but could change the mix of those investments in terms of fuel source, but it should not add to the total.

The CHAIRMAN. What's going to be foregone? If you put $100 billion of investments in it, certainly it's far more displacing than $10 billion.

Mr. HILL. But if our analysis is correct, Mr. Chairman, you're not displacing investments, say, in petrochemicals or in health care for that facility; you're displacing investments in one form of energy as opposed to another. It's operating within a total capital investment.

The CHAIRMAN. What form of energy investment is going to be displaced?

Mr. HILL. Well, I think to some extent, if that bill were to pass and be successful, you could have over time displacements in conventional oil and gas exploration development; you could have displacements in the nuclear area as well. Synthetic fuels, for example, could pick up a bigger load of the Nation's energy requirements than we currently predict will be the case. You won't be adding to the total investment in that bill, in our mind, but simply shifting the resource mix that's used.

Senator McINTYRE. Mr. Chairman, may I ask a question?

The CHAIRMAN. Yes, certainly.

Senator McINTYRE. Are you saying that $600 billion will be spent in the existing energy problems without any Government assistance; your program for $100 billion is to go away from the ones that are in existence and to look at the emerging ones and try to bring them along to get a mix? Is that correct?

Mr. HILL. That's correct.

The CHAIRMAN. We have information that at least one prominent expert Wall Street firm has estimated that there would be about $900 billion investment with no Federal action at all. Most of that, of course, is internal cash flow, reinvesting profits, reinvesting depreciation reserves and so forth; but there's also some outside money. This $100 billion would just about double the outside investment.

Mr. HILL. My statement was that there would be in excess of $600 billion over the next 10 years. We have an estimate ourselves. I think it's a little lower than $900.

The CHAIRMAN. If we talk about $600 or $900 billion, then this $10 billion doesn't look very big, does it?

Mr. HILL. It doesn't look very big at all. The question you have to ask is, if 10 percent or 50 percent of that $10 billion were to be spent to reward behavior that was going to occur anyway, I think there would be better uses of that capital in society than to simply lower the cost to somebody that was getting ready to do it anyway. I just don't see any need to enter into that kind of thing when there are so many other crying needs around the society for the capital.

The CHAIRMAN. Will you provide for the record the investments that will be displaced by the $100 billion program?

Mr. HILL. Yes.

The CHAIRMAN. Now Senator McIntyre, why don't you go ahead?

Senator MCINTYRE. I just have one question. I'm curious. What are the emerging energy sources in some detail? Can you recite some and then add the rest to the record?

Mr. HILL. Yes, I can. I think we're talking about the synthetic fuels, coal, gas—both high and low Btu. We are talking about shale oil. We are talking about geothermal. In time we will be talking about wind and solar in terms of large-scale applications. Those are clearly the emerging technologies in the energy sources, as well as fusion power in looking toward the next century.

Senator MCINTYRE. Thank you.

The CHAIRMAN. Thank you, Senator McIntyre.

Mr. Orlebeke, how do other countries deal with the problem of energy conservation in existing buildings? I've heard in Sweden loans are available at low interest rates, for example, Do you have any information on that?

Mr. ORLEBEKE. I'm not familiar personally with such programs, Senator.

The CHAIRMAN. Do you believe a national program of individual house energy audits would be a good idea as proposed in this legislation I understand?

Mr. ORLEBEKE. Are you talking about a Government-sponsored program as contemplated by this proposed legislation?

The CHAIRMAN. That's right.

Mr. ORLEBEKE. Well, I have some difficulty with the complexity of what's envisioned in the proposal. That part would be administered by FEA and I would defer to Mr. Hill on that score. We certainly do encourage the use of energy audits at a layman's level for "Harry Homeowner" and we do have a publicity program which focuses on a particular pamphlet which I mentioned. This provides a simple checklist for the homeowner, to determine what the possibilities for energy savings are and to make his own assessment.

The CHAIRMAN. See, this is a fascinating public policy issue because we have had a lot of complaint by a lot of people which say "leave us alone, get the Government out of our hair, don't bother us." Then we come up with a program which would provide house energy audits, every home, to find out how efficiently they are using energy. People would obviously resent it. At the same time, you do have an opportunity here to save probably enormous sums of now wasted energy. If we do have this, do you have any idea what it would cost and who would pay for it? Would it be paid for by the individual householder to be inspected by some kind of a fee or would it be paid for out of general revenue?

Mr. ORLEBEKE. The bill provides that there will not be direct cost to the homeowner. I think there is a hollow silence on where the money would come from for such an energy audit program.

The CHAIRMAN. Tomorrow we have hearings on the Humphrey-Hawkins bill which is a bill which would provide jobs for everybody who's unemployed. I'm wondering if this would be one way of doing it. Is personnel available for this kind of a comprehensive audit of every house in the country?

Mr. ORLEBEKE. I don't know. The bill contemplates certification of energy auditors, and so forth. But in response to your question as to who will pay for it, there's the usual answer: the taxpayer will pay for it one way or another.

The CHAIRMAN. I understand that $50 million is allowed for that. How far will the $50 million go? How many houses will that cover?

Mr. ORLEBEKE. It's $50 million for the entire program of State conservation program development, not for the energy audit program itself.

The CHAIRMAN. That would have to be a part of that?

Mr. ORLEBEKE. Yes. Well, I'm not sure, Senator, but you're certainly talking in the neighborhood of several hundred dollars per unit, I would say, for an energy audit. That's just a guess.

The CHAIRMAN. Well, then, if you're going to get a million homes, which would be a small portion really of all the homes in the country, how much did you say per unit?

Mr. ORLEBEKE. My guess would be somewhere between $200 and $500. That's just a guess. I think I would want to look at programs which have somewhat analogous processes and get a cost figure.

The CHAIRMAN. The audit would have to be extremely limited. wouldn't it?

Mr. ORLEBEKE. Yes.

The CHAIRMAN. Mr. Hill, I'd like to get back to what we were discussing before. You say $10 billion investment in energy conservation would displace investments in other sectors of the economy. Why wouldn't it simply displace investments in energy supply projects that would not be needed due to lower demand in energy?

Mr. HILL. They could, Senator. I think once our analysis is complete we will have a better fix on that. When I say it would displace, I didn't say it would displace investments in automobiles or refrigerators or health care or anything else. Some of those displacements could be on the energy production side as well.

The CHAIRMAN. Mr. Wettach, can you tell us what small businesses think about section 9 loan and the subsidy provisions of the bill? Do you have any feel for that?

Mr. WETTACH. We haven't done any poll or any feeling about it.

The CHAIRMAN. The reason I raise that point is that small businesses have indicated they don't want to take on more debt even for energy conservation savings. So I wonder, would the subsidy savings in terms of monthly payments stimulate that?

Mr. WETTACH. Our experience has been that when something is available at a preferred rate of interest—and one of the points I would make is the method of calculation or level of interest is not specified—but presuming it was at a preferred rate, that the money would be taken and most of our programs that have any availability at less than market rates are used up very quickly. So even though there might be some objection, if it had a financial benefit, I believe the businesses would use it.

The CHAIRMAN. Mr. Hill, you say that temporary financial incentives are needed to get investments in energy conservation. You stress temporary. I'm not sure what you mean by "temporary." Would that mean until we end price controls on gas and oil?

Mr. HILL. I think that is part of the answer, Mr. Chairman. The other part is that it's our view that temporary incentives, such as the tax credit that was proposed last year, is going to achieve the investments within about a 3-year period the bulk of the investments that you will get, even if you extended that program say for 10 years. So it wouldn't be a permanent program but a temporary program that would stimulate the investments that will occur in that period of time.

The CHAIRMAN. How many units does FEA expect the tax credit and weatherization program will support to make energy sound each year?

Mr. HILL. I think for the weatherization program our estimate is that the program we requested of roughly $55 million a year for three years—that's for the low income homes—would weatherize approximately 400,000 homes per year. In the case of the tax credit—I'll have to get that number—it would be in excess of several million people a year that would take those actions as a result of the tax credit program.

The CHAIRMAN. How can you make any judgment as to the portion of taxpayers that would take advantage of it and the portion of taxpayers who are going to do it anyway and simply use it as a deduction on their income tax? Is there any kind of a study, any kind of analysis that's been developed?

Mr. HILL. I think that would be a very difficult kind of question to answer until after the fact, if you will. We have some experience of elasticities in energy prices and we have some experience of what homeowners have done to date, such as the Michigan example that I cited, and the tax policy people at Treasury from their own experience with similar kinds of tax deductions over the years can make estimates about the use rate.

The CHAIRMAN. Is there any indication that people are holding up going ahead with this with the feeling that if they wait they will be able to get a tax advantage? I've had people approach me in Wisconsin saying, "When are you going to come on with this tax credit? I'm waiting for that before I insulate my house." They may be the exceptions, but they may not be. Do you have any notion on that?

Mr. HILL. We only have the same kind of information, which is ancedotal type of information of people just making that statement, "I'm not going to insulate until I get the tax credit" or "When is it coming" or "Is it coming? I need to make up my mind."

I think as to the highly informed homeowner you probably have some number of those people who are waiting to see what happens to this tax credit. For those who don't even know that the tax credit is under consideration, you probably have virtually no impact.

The CHAIRMAN. What percent of all buildings needing improvement will be sound within 3 years? That is the authorization period you cite. Do you know what percentage of all buildings need it?

Mr. **Hill**. I'll have to supply that.

The **Chairman**. It's my understanding it would be a very, very small percent.

Mr. **Hill**. Well, it depends on what you mean by soundness. We can give you estimates of how many houses would be insulated at the end of that time.

The **Chairman**. Don't the overwhelming majority of our homes now, aren't they considerably inefficient. Wouldn't effective insulation probably provide for a 20-, 30-, 40-percent savings in energy costs?

Mr. **Hill**. Well, we think that is roughly correct, that the bulk of the houses today—existing stock, not the new stock—are not insulated and that there would be considerable savings.

The **Chairman**. Then if you consider all the homes we have, all of the schools we have, all the churches we have, all the other buildings that would be improved, probably 100 million in this country, it would seem to me you would be lucky to get 1 or 2 percent.

Mr. **Hill**. I think so. I think you have to look at the structures. For example, you can put insulation in a house if it's not there. If it doesn't have storm windows you can add that. If it has bad caulking, you can caulk the doors. There are a series of steps that can be taken. There are some houses that you can never completely weatherproof. Where the roofs are bad or the structures are old or you have large cracks in the walls it's just impossible. If you look at schools, on the other hand, to the extent that the school stock or the stock of school buildings was built in the period of fairly cheap energy, which meant you had virtually no insulation—with brick walls and lots of windows—it's going to be very difficult, if not impossible, to weatherize those. Storm windows for large windows in structures with lots of windows are not a viable option. If they've got solid stone walls it's going to be very difficult to insulate those. It's very hard, at least for me to understand, what some of the schools I have seen would do in terms of energy conservation other than turn down the thermostats, reduce the number of lights that burn, or to put candles in their rooms.

The **Chairman**. Mr. Orlebeke, it's been pointed out that only a small number of home improvement loans are made through title I. If the Congress decided to adopt the approach of this bill in section 8 as a homeowners assistance loan, do you think the Farmers Home and VA should be included? What about including conventional lenders?

Mr. **Orlebeke**. I'm not aware that either Farmers Home or VA has a home improvement loan program, Senator.

The **Chairman**. They do. It's small but they have it.

Mr. **Orlebeke**. Yes, Farmers Home does. You're correct on that. The point about the share of the market is a valid one since the FHA share of the home improvement market has been running in the 15 to 20 percent range the last few years. Certainly if the incentive were attached to conventional loans as well there would be a greater impact for such a program.

The **Chairman**. Well, gentlemen, I want to thank you very, very much. You have made a very helpful record and certainly informed this Senator and I think the committee. Thank you very much.

Our next witness, our final witness, is Mr. Carl Bradley, vice president and chairman of the Energy Committee of the American Institute of Architects.

May I say to the Administration witnesses that are departing, we will have additional questions for you for the record which I would appreciate if you would answer when you correct your remarks. We will have those available to you probably today.

As I say, our final witness is Mr. Carl Bradley, vice president and chairman of the Energy Committee of the American Institute of Architects. Mr. Bradley, you are accompanied by?

Mr. BRADLEY. Mr. John Eberhard, who is president of the AIA Research Corp.

The CHAIRMAN. All right, sir. Go right ahead.

STATEMENT OF CARL BRADLEY, FAIA, VICE PRESIDENT AND CHAIRMAN OF THE ENERGY COMMITTEE, THE AMERICAN INSTITUTE OF ARCHITECTS, ACCOMPANIED BY JOHN EBERHARD, AIA, PRESIDENT, AIA RESEARCH CORP.

Mr. BRADLEY. Thank you. I appreciate the opportunity to speak in behalf of the AIA and express our views on S. 3424, the Energy Conservation Act of 1976.

The American Institute of Architects fully endorses and supports this legislation. The AIA has been deeply concerned with the problem of energy conservation in the built environment for several years and we are pleased to see congressional action on this issue. From our involvement with the proposed Building Energy Conservation Standards Act (title II of H.R. 8650), you are aware of our support for measures requiring reduced energy consumption in new buildings. The objectives of S. 3424 are to encourage retrofitting of existing buildings and to increase public awareness of this vast potential for energy savings.

Studies done by the AIA indicate that by 1990 energy savings equal to any one of the U.S. prime energy production systems is possible if a major effort is undertaken to build and rebuild for efficiency. The advantages of using our capital resources for energy conservation are numerous. Such a course of action would not only decrease our reliance on foreign oil and the attendant drain on the balance of payments, but it would also reduce the pollution problems caused by the burning of fossil fuels.

These long range benefits alone justify a national investment in energy conservation as described in this bill. In the shorter term, the programs in S. 3424 would give a needed stimulus to the depressed construction industry by creating jobs. At the same time, they would result in lowered costs to the energy consumers taking advantage of the loans.

In the short or long term, the fact remains that the more than 70 million existing residential and commercial buildings will constitute the majority of structures for many years to come. Designed and built in an era of energy plenty, this existing stock of buildings is a significant energy consuming sector that must be dealt with in any conservation strategy. However, there are many constraints, both institutional and economic, which will have to be overcome if the potential for conservation in this area is to be realized.

During the era of seemingly inexhaustible energy, our society evolved attitudes, policies, tax laws, and institutional practices which engendered a powerful demand for buildings of low first cost.

New buildings and major improvements to existing buildings, including energy efficient measures, are financed to a large extent on borrowed funds. The traditional approach to reduce the risk associated with this type of debt has been to minimize initial construction costs as much as possible. This aspect, together with certain tax considerations—such as those for commercial buildings which favor the economics of higher operating costs over higher capital expenditures—make the first cost problem a formidable barrier to the construction of energy efficient buildings.

Many building owners and operators are aware of the potential for saving energy. They need and want to reduce their energy costs. But they are simply unable, in the current market, to acquire the capital to make the necessary modifications. It is precisely this problem that is addressed by S. 3424. The program of loan guarantees and interest subsidies contained in the bill is an important first step.

In earlier testimony on this legislation before the Committee on Commerce, we expressed concern over the need to structure the loan programs in order to prevent abuses. The AIA is pleased to see that such safeguards have been included in the revised version of the bill now before this committee.

We also testified earlier on the desirability of a more direct link between Federal assistance and the amount of energy to be saved, as demonstrated by rigorous energy audits of existing buildings. The revised bill does place much more emphasis on energy audits. It does not, however, specifically require that energy audits are to be a prerequisite to financial assistance, nor does it assign a priority to conservation measures that promise greater energy savings. The determination of whether a proposed conservation measure will save enough energy to qualify under the act is left to lending institutions operating under the various State plans and Federal regulations. We would only suggest to the committee that, rather than relying on future regulations, it seriously consider the possibility of requiring documentation of significant, projected energy savings as a qualification for assistance, at least for business owners.

Another comment which we made to the Commerce Committee concerned the importance of effective operation and maintenance of energy conservation measures once they are incorporated in buildings. Looking at S. 3424, it appears that this subject is best covered in the model State energy conservation implementation program to be developed by the Federal Energy Administration. We recommend that FEA, in drafting the model program, be encouraged to include provisions for State public education efforts stressing proper operating and maintenance of energy conservation measures.

In conclusion, the AIA is pleased to support S. 3424. The recent recognition by the Energy Research and Development Administration that conservation deserves a higher priority reinforces our belief that this legislation is both timely and needed. We thank the committee for the opportunity to express our views and we would be happy to respond to your questions at this time.

[The complete statement follows:]

THE AMERICAN INSTITUTE OF ARCHITECTS

THE ENERGY CONSERVATION ACT OF 1976

A STATEMENT BY

CARL L. BRADLEY, FAIA

VICE PRESIDENT

THE AMERICAN INSTITUTE OF ARCHITECTS

TO

COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS

UNITED STATES SENATE

WASHINGTON, D.C.

May 19, 1976

1735 NEW YORK AVENUE, N.W. • WASHINGTON, D. C. 20006 • (202) 785-7300

Mr. Chairman and members of the Committee. I am Carl L. Bradley, FAIA, Vice President of the American Institute of Architects and chairman of the Institute's Board of Directors Energy Committee. I am here today to speak on behalf of the AIA, the national society for the architectural profession, and to express our views on S. 3424, the Energy Conservation Act of 1976.

The American Institute of Architects fully endorses and supports this legislation. The AIA has been deeply concerned with the problem of energy conservation in the built environment for several years and we are pleased to see Congressional action on this issue. From our involvement with the proposed Building Energy Conservation Standards Act (Title II of H.R. 8650), you are aware of our support for measures requiring reduced energy consumption in new buildings. The objectives of S. 3424 are to encourage retrofitting of existing buildings and to increase public awareness of this vast potential for energy savings.

Studies done by the AIA indicate that by 1990 energy savings equal to any one of the United States' prime energy production systems is possible if a major effort is undertaken to build and rebuild for efficiency. The advantages of using our capital resources for energy conservation are numerous. Such a course of action would not only decrease our reliance on foreign oil and the attendant drain on the balance of payments, but it would also reduce the pollution problems caused by the burning of fossil fuels.

These long range benefits alone justify a national investment in energy conservation as described in this bill. In the shorter term, the programs in S. 3424 would give a needed stimulus to the depressed construction industry by creating jobs. At the same time, they would result in lowered costs to the energy consumers taking advantage of the loans.

In the short or long term, the fact remains that the more than 70 million existing residential and commercial buildings will constitute the majority of structures for many years to come. Designed and built in an era of energy plenty, this existing stock of buildings is a significant energy-consuming sector that must be dealt with in any conservation strategy. However, there are many constraints, both institutional and economic, which will have to be overcome if the potential for conservation in this area is to be realized.

During the era of seemingly inexhaustible energy, our society evolved attitudes, policies, tax laws, and institutional practices which engendered a powerful demand for buildings of low first cost.

New buildings and major improvements to existing buildings, including energy efficient measures, are financed to a large extent on borrowed funds. The traditional approach to reduce the risk associated with this type of debt has been to minimize initial construction costs as much as possible. This aspect, together with certain tax considerations -- such as those for commercial buildings which favor the economics of higher operating costs over higher capital expenditures -- make the "first cost" problem a formidable barrier to the construction of energy efficient buildings.

Many building owners and operators are aware of the potential for saving energy. They need and want to reduce their energy costs. But they are simply unable, in the current market, to acquire the capital to make the necessary modifications. It is precisely this problem that is addressed by S. 3424. The program of loan guarantees and interest subsidies contained in the bill is an important first step.

In earlier testimony on this legislation before the Committee on Commerce, we expressed concern over the need to structure the loan programs in order to prevent abuses. The AIA is pleased to see that such safeguards have been included in the revised version of the bill now before this Committee.

We also testified earlier on the desirability of a more direct link between federal assistance and the amount of energy to be saved, as demonstrated by rigorous energy audits of existing buildings. The revised bill does place much more emphasis on energy audits. It does not, however, specifically require that energy audits are to be a prerequisite to financial assistance, nor does it assign a priority to conservation measures that promise greater energy savings. The determination of whether a proposed conservation measure will save enough energy to qualify under the Act is left to lending institutions operating under the various state plans and federal regulations. We would only suggest to the Committee that, rather than relying on future regulations, it seriously consider the possibility of requiring documentation of significant, projected energy savings as a qualification for assistance, at least for business owners.

Another comment which we made to the Commerce Committee concerned the importance of effective operation and maintenance of energy conservation measures once they are incorporated in buildings. Looking at S. 3424, it appears that this subject is best covered in the model state energy conservation implementation program to be developed by the Federal Energy Administration. We recommend that FEA, in drafting the model program, be encouraged to include provisions for state public education efforts stressing proper operation and maintenance of energy conservation measures.

In conclusion, the AIA is pleased to support S. 3424. The recent recognition by the Energy Research and Development Administration that conservation deserves a higher priority reinforces our belief that this legislation is both timely and needed. We thank the Committee for the opportunity to express our views and we would be happy to respond to your questions at this time.

The **Chairman**. Do you have any data at all on how much action has been taken by homeowners and businessmen and others to improve insulation in the last 2 or 3 years since the energy crisis developed and the price of energy increased?

Mr. **Bradley**. We don't have any specific data that would indicate any quantifiable measure of that action.

The **Chairman**. Have you an opinion as a professional architect and as one representing the AIA what dimension that might be? Do you think there's been 5 or 10 percent or more of the homes that have recognized the economy?

Mr. **Bradley**. I think most of our experience as a profession has been that many building owners are talking about this kind of effort and are aware of the desirability of it, but the actual doing of it has been rather limited.

Mr. **Eberhard**. If I could respond also, Senator, I think the implication of your question and many of the anwers you got a few moments ago from the administration representatives imply that you're talking about single-family housing. Some of us are fortunate enough to live in single-family housing, but the vast majority of the population lives in units other than single-family housing. Insulation is only one of the means by which energy can be conserved in such housing units. Particularly for people who live in multifamily housing and high-rise housing, the notion of insulation is a limited notion. There are many other kinds of things that might be done to help them with their energy costs.

The **Chairman**. Well, I would think that the energy conservation would be much more likely in the multifamily housing because, usually, it would be operated by somebody who operates it on the basis of making money out of it and they are conscious of the costs and they are conscious of their income and trying to make a profit out of their operations, and therefore, you would think that they would be more sensitive to taking action with the rising cost of energy which would pay for itself in a relatively short time. Your point is that technologically it's more difficult if you have an apartment building, say with 10 apartments, to provide for insulation or other energy-conserving action as compared with owning a home?

Mr. **Eberhard**. I'm saying insulation as such, which was the specific meaure you asked about, insulation in the range of things that might be done becomes less important as an activity for someone to invest funds in.

The **Chairman**. Why?

Mr. **Eberhard**. Because in a single-family house, if it is uninsulated, adding insulation can make a significant amount of difference in the amount of energy that's being used.

The **Chairman**. Why can't it make a difference in the apartment?

Mr. **Eberhard**. Because there's less exposure in an individual unit. In a total building, yes, but the individual apartment owner in an apartment building——

The **Chairman**. I see. Where you have condominiums you have a different proposition?

Mr. **Eberhard**. You have fewer walls exposed, for one thing.

The **Chairman**. I was thinking in the old-fashioned sense before condominiums came in where the building is usually owned by the landlord and he's operating on the operation of good business sense and he has a chance to invest and if it pays itself back in 2 or 3 years they will usually do that. The condominium I can see why you wouldn't.

Mr. **Eberhard**. It depends on who's going to bear the cost of the energy. If the landlord can pass through the costs to the tenants, he doesn't necessarily have the incentive to do something about reducing energy consumption.

The **Chairman**. The administration witnesses testified a few minutes ago that that ought to be a temporary program, that the high energy costs that are going to follow when we abandon price controls on energy will provide an incentive in the marketplace that could be pretty effective. Do you have a view on that. Mr. Bradley?

Mr. **Bradley**. Well, I think that the experience in other energy related areas has not really borne that idea out very well. Automobile gasoline, for example, where the increasing market price initially had a very strong tendency to reduce consumption and led to smaller cars and so forth and so on; but reading the reports now, there's no real evidence that gasoline consumption has fallen off at all and in fact all the automobile manufacturers are now reporting that the large cars are the ones that are selling.

The **Chairman**. Well, it fell off very sharply last year. It fell off in 1974. The first year there was a 5-percent drop. In view of the demographic figures and population figures it was a remarkable effect, but that was because we had that big increase, but then we adjusted to it and right now we're back on the same old track. You think the same thing would be true in the future?

Mr. **Bradley**. It's hard to say. In some respects the increase in cost will impact in such a way that it will be clearly to the economic advantage of the owner to do that. But as John mentioned, the problem is that in many of our buildings, not only residential but commercial as well, the lease agreements are such that the energy costs are passed through to the occupant. The occupant who may be paying the increased costs is not in a position to invest in energy conservation measures because he's not the owner of the building.

The **Chairman**. Now you gentlemen are expert architects. You could be very helpful to the committee in telling us whether or not we ought to clarify this legislation to provide—I'm not sure whether it provides this or not and the staff isn't either—the legislation—should large equipments such as furnaces and air conditioning units be included as eligible energy conservation activities and how can we distinguish improvements from conserving activities that we seek to assist, air conditioning units and furnaces?

Mr. **Bradley**. I didn't get your last question.

The **Chairman**. Well, my concern is if we include this large equipment we're talking about—the argument is that insulation isn't the total answer and you've got other elements of energy you can switch to—it may be more productive, especially in the big apartments. How can we distinguish improvements, just the people going out and improving their situation, getting a more attractive unit of one kind or another, from conserving activities?

Mr. **Bradley**. OK. In general, we would, I think, support the idea of including the larger elements of mechanical equipment because in fact this is an area where the potential for energy conservation is substantial. The improvement aspect of it as opposed to the conservation aspect is really critical and it gets into the thing that I mentioned briefly, and that is it doesn't matter how much money we spend or effort we go to implement energy conservation devices within a structure if we don't operate the structure so as to utilize those devices effectively. This is one of the things that we find out, that in fact, many of the energy conservation measures that are being taken by building owners is not in replacing equipment but simply changing the operation of that equipment in a way so as to conserve energy.

The CHAIRMAN. That would be fine if they changed the equipment to make it conserve. What I'm concerned about is the prospect that they may just go out and buy a brand new, beautiful furnace that may be even less efficient, but they will get the tax deduction in doing that, and how do we prevent that kind of action?

Mr. BRADLEY. I don't know.

Mr. EBERHARD. In the bill itself there's a good definition, I think, of energy conservation measure that says this means an investment, which is what you're talking about, an action or a procedure which is designed to modify in whole or in part any existing housing, residential building or industrial plant.

The point I think that we would like to make is that there exists a limited view that energy conservation is primarily achieved by modifying equipment. Buildings and equipment don't require energy. It's the people who live in those buildings or who use those buildings for some human activity that require the comfort.

The CHAIRMAN. From what you read there in the bill, it strikes me if the owner of the building simply buys a new furnace or a new air-conditioning system, a new one and not modify the existing one but just buys the new one, he might claim he qualifies; and how do you determine without a lot of expense whether or not it is a conservation action?

Mr. EBERHARD. Well, I would hope what the owner would be buying would be a process of energy conservation, which includes the initial audit, which includes recommendations about a series of things that they might do in their building. If one of those recommendations, done by a competent professional, is that new equipment would produce considerable savings in energy and that in fact is documented as an investment, then the possibility that that would be included in this package and processed for energy reduction purposes seems appropriate.

There's a pump-priming effect that I think is something to think about with respect to your earlier question; that is, does it have to go on indefinitely? People who are in the development business and who are in the homebuilding business, and homeowners, are fairly good imitators of success stories. If we can, through Government investment in a pump-priming program that provides up-front capital, establish success stories, I think there's a good possibility that over the next few years that other people, once those success stories become clear, would go into the private marketplace to borrow money on their own for those purposes.

What we don't have right now are very many success stories that would cause people to go out on their own initiative and borrow money from private lending institutions for this purpose.

The Chairman. Now you say at the top of page 3, Mr. Bradley,

> Many building owners and operators are aware of the potential for saving energy. They need and want to reduce their energy costs. But they are simply unable, in the current market, to acquire the capital to make the necessary modifications.

I wonder how you can establish that? It seems to me that it's hard for people to borrow money to buy a house or to buy an apartment perhaps, but to borrow the relatively limited amount of money you need for insulation or for an improvement that would get more efficiency for your furnace or air conditioning, it seems to me is a relatively easy problem for most people—not for all, of course, and I think it is necessary to provide a subsidy for those whose incomes are low, very low, but for most I don't see why you argue that acquiring capital now is that difficult.

Mr. Bradley. There are two aspects to that, Senator. In the first instance, there is, we believe, a somewhat general tendency among lending institutions to classify the amount of loan on a particular kind of building or type of house or whatever, in terms of generally established procedures which relate not so much to the operation of that facility, the economics of the operation which would be helped by energy conservation, but to the market value of it. What is it worth on the market? And the conservation of energy in the operation of buildings and homes has not yet been plugged into the appraisal or evaluation techniques generally that relate to the methods by which lenders establish the amount of money to be loaned. That's one aspect of it.

The other aspect of it is that it's not merely acquiring the capital that is a problem, but acquiring it at a rate of interest and investing it in ways so that the savings do in fact provide an economic benefit or at least a break-even situation for the building owner. We are just at the edge of that because of the increased costs, but as John indicated, some stimulus to start people moving in that direction, to make a success story out of energy conservation, I think, would be a tremendous stimulus to other sectors that would tend to move in that direction, particularly as the energy costs increase.

The Chairman. I can't understand why the good, old free enterprise system, in which all of us believe in so deeply, which I certainly do, won't move in with vigor and recognize they have a great mission to perform for the country and they have a great opportunity. In view of the increased energy costs, in view of the fact that people tell us over and over again you can pay for this in a matter of months, it pays for itself and it's something that may cost $200 but you make that $200 back in 6 months or a year often—I think if that message gets out, if people know it, if you've got good, hard, tough salesmen out selling that, that you're going to get some action here. I don't know why the Federal Government has to come in with a subsidy when free enterprise says that's the last thing they want. They want to hold down Federal spending. They want to keep the Federal Government out. They want to do it themselves. Why can't this be done in the private sector by just vigorous promotion, the way we have solved so many problems?

Mr. Bradley. I don't think the economics are sufficiently sound at this point to make that happen.

The CHAIRMAN. What's happened in this industry? Is it moving pretty well, the insulation industry and the furnace and air-conditioning industry? Are they near capacity? Are they doing pretty well or are they doing badly? I know construction is in bad shape. We don't have the housing starts we ought to have. I'm talking about something else, the energy conserving. I don't know about energy per se, but in general I would not say they are not very high.

Mr. EBERHARD. Manufacturers of insulation tell me that their sales are off, that due primarily to new housing starts and the decline in their normal market, they have not seen a big upsurge.

The CHAIRMAN. We have had the depression in the homebuilding industry in this country for the last couple of years. Last year's was the worst disaster that we probably have ever had. This year is a little better but no much. I notice housing starts this month off again about 4 percent.

Mr. BRADLEY. To illustrate the economic problem, I'll tell you an anecdote which may or may not be true. This building owner spent money to retrofit to conserve energy. He used electric heat and the amount of power used dropped him into a different category. So even though he was using less, he ended up paying more.

The CHAIRMAN. He was using less but paying more?

Mr. BRADLEY. Because of dropping into a lower rate category. You see, the utility rate structures are backwards from the way they ought to be.

The CHAIRMAN. I would think that would be incremental. The incentive is if you use more you get the additional amount at the lower rate, but this must have been a system where the entire rate structure was so rigged that everything dropped down.

Mr. BRADLEY. Well, my example may be an anecdote rather than a reality, but the fact is that as you reduce electrical energy consumption you pay more on a unit cost basis.

The CHAIRMAN. I'm glad you bring that up. It seems to me that one action we ought to do our very best to take—and we have to take it through the State public service commissions, the regulatory bodies—is to make sure to stop the incentive for using more energy and do it the other way. In other words, the more you use, the more you pay. It ought to be a higher rate, not a lower rate. I understand some have done that. We ought to do our best to make that universal. That would probably be as useful as the more expensive proposals we have in the legislation.

Mr. BRADLEY. I think that would be very helpful. The other aspect is in the anecdote I was telling you about is the appraiser then came around and assessed the property from the increased value of the investment, so his property tax bill went up. You know, it was kind of a horror story, but it illustrates I think the fact that the real economic benefit in doing this thing is so marginal now that it's not sufficient incentive to induce very many building owners to do it.

The CHAIRMAN. Well, gentlemen, thank you very much. We very much appreciate your testimony.

The record will remain open for 7 days for additional statements and the hearing is adjourned.

[Whereupon, at 12:15 p.m., the hearing was adjourned.]

APPENDIX

STATEMENT OF THE GENERAL ELECTRIC COMPANY TO THE SUBCOMMITTEE ON HOUSING AND URBAN AFFAIRS OF THE SENATE COMMITTEE ON BANKING, HOUSING AND URBAN AFFAIRS

Proposal

The purpose of this statement is to propose that the above Subcommittee include the HEAT PUMP as an energy conserving device in the Senate's Energy Bill and make it eligible for financial incentives when it is used to replace other forms of heating equipment in a modernization, replacement, or retrofit situation for residential structures.

A summary of the rationale supporting this proposal is contained in the following two pages.

SUMMARY

Rationale Supporting this Proposal

- Space heating uses 18% of the nation's energy. The primary sources of heating energy used in existing dwellings are gas, oil, and electricity.

- Gas is no longer available in many areas for new construction. This curtailment is spreading. (Chart #4)

- The added use of electricity for heating can reduce dependence on home gas and oil usage.

- The principal forms of electric heating are: Electric resistance and the heat pump.
  - Electric resistance systems cost less to install (Chart #1)
  - Heat pump systems use 30% to 60% less energy than electric resistance systems (actual savings determined by climate and geography)
  - Over a five-year period, including first cost and operating cost, the heat pump system costs less than the electric resistance heating and cooling system. (Chart #2)

- As an energy saving device the heat pump could economically replace existing electric resistance heating equipment in many dwellings. In some cases, the heat pump could replace oil or gas fired equipment economically. In many cases the heat pump could economically replace electric resistance, gas or oil fired systems when significant repair or maintenance cost of the existing equipment is involved. (Chart #3)

- A modest financial incentive to support the heat pump in the residential modernization or retrofit market could be very effective in encouraging home owners to install energy saving heat pumps in existing dwellings.
- The final results would be an energy saving of from 30% to 60% (depending on climate and geography) over electric resistance heating and a freeing of gas and oil for more critical needs when these systems are replaced.
- It is estimated that this financial incentive would cost the government $15.6 million over a four-year period. (Chart #5)
- As an item of interest, the same logic that supports this program for residential structures also supports the same type of heat pump program for commercial and industrial buildings.

PROPOSAL DETAILS

The General Electric Company is working in many areas of energy conservation. The Company is developing new energy efficient products; working on methods of converting coal and shale oil to more usable energy forms; working to improve the efficiency of electrical power generation and transmission systems; working with energy substitutes to conserve scarce reserves of natural gas and oil and developing new energy alternatives, including solar heating and cooling, wind generators, photovoltaics and solar thermal units. It is our belief that we must energetically move forward on all of our options to meet the nation's energy needs. This statement addresses the areas of new energy efficient products.

1. Electric energy offers the opportunity to conserve scarce reserves of fossil fuels by substituting more available energy forms.
    a. The problem of dwindling reserves of natural gas and oil in the United States is well known. Our nation does possess great quantities of other forms of energy, such as coal. This fuel, along with the nation's technology leadership in nuclear power, provides a secure basis for electrical power generation. Broader and more efficient use of electrical power that is generated from these abundant local fuels is certainly a major step toward national energy independence.

b. In 1973 18% of all energy used in the United States was used for space heating. The inventory of existing fuels used in 1973 for space heating divides approximately 45% oil, 45% gas, and 10% electricity. The actual use of electricity for heating newly constructed homes has been increasing very rapidly. In 1974 over 50% of all newly constructed dwellings were heated electrically. By far the largest percentage of these used the electric resistance system.

c. There are two principal systems that can be employed to use electricity for space heating; one is the resistance heating system, and the other the heat pump. The purpose of this paper is to present the merits of the heat pump.

2. The heat pump uses electrical energy efficiently - Recovers 2 units of heat for every 1 unit of electrical energy used.

The heat pump is a refrigeration cycle which reverses to provide both cooling in warm weather and heating in cold weather. In the summertime the heat pump takes heat from inside the house and exhausts it outside. In the winter it takes heat from outdoors and brings it inside the home. Even when the outdoor temperature is below freezing there is still a lot of heat in the air and the heat pump is capable of extracting it from the air and bringing it indoors. In northern climates the heat pump is slightly less efficient than in southern climates; however, on the average nationally the heat pump delivers 2 units of heat for every 1 unit of electrical energy consumed. In other words, for every kilowatt of electrical energy that the heat pump consumes it extracts the equivalent of 2 KWs of heat energy from the air and transfers it to useful work. The electrical resistance type heating systems in popular use today deliver heat energy on a "1 for 1" basis. For every KW of electrical energy used the electrical resistance system delivers 1 KW of equivalent heat energy. On the average, the heat pump is twice as efficient as the electric resistance system; or, saying it another way, the heat pump will heat the home for one-half the fuel used by the electric resistance system. Even when compared to the burning of critical fuels directly in the home, such as gas or oil, the heat pump compares favorably. Because of its 2 for 1 recovery ratio, the heat pump makes up for much of the conversion losses of power generating systems.

3. The first cost of heat pump systems is higher than electric resistance or some fossil fuel systems.

With the heat pump as attractive as it is from a fuel efficiency standpoint, one can't help but wonder why a financial incentive is desired to encourage its use. First, one must realize that speculative builders construct over 80% of all the single family houses in the U.S. These builders are highly competitive and are constantly working to keep the cost of their homes as low as possible and still comply with federal and state codes and standards. For a typical 2000 square foot house in the Philadelphia area a builder might install an electric resistance furnace with cooling equipment for approximately * $1800. It might cost him about * $2600 to install a heat pump. (See chart #1 attached.) For a difference in his cost of about $800 there is great competitive pressure on the builder to install the lower cost system - the electric resistance furnace.

For the consumer who owns a home and desires to convert his heating system to the more efficient heat pump, this incentive would not pay the total cost but would be effective in encouraging him to make the conversion.

4. When considering owning costs, first cost plus heating fuel costs, heat pumps compare favorably.

The problem with the electric resistance system, however, is operating cost. Unfortunately, few home buyers really understand heating and cooling systems. They get a much better understanding of it after they pay the first winter's heating bills; then it is too late.

---

* All cost data in this document and on the attached charts are rough estimates only. Actual costs will vary by brand, equipment, installer, etc.

Chart #2 attached adds the cost of fuel for five years to the installed equipment cost. Now the gas furnace moves to first place, with the heat pump in second, and the electric resistance system last. This chart assumes five-year fuel costs as shown on chart #3.

This brings up the obvious question regarding the position of the gas furnace and electric cooling systems. Gas is no longer preferred as a heating fuel for new homes for several reasons. First, and critically important, gas is not available for new construction in many parts of the country. The shaded areas in the attached chart #4 indicate some of these areas. It is forecast that these restrictions will spread in the next few years. Second, gas is critically needed in industrial processes, making of fertilizer, plastics, medicine, etc. Third, if gas is deregulated, its price would increase significantly and become less attractive.

5. Current status of the heat pump in new construction

In 1975 there were 176,000 heat pumps sold in the United States. Due to gas restrictions and the favorable economics of electric heating with the heat pump, sales in 1976 will increase to about 300,000. Practically all of these units are being used in the new construction market.

6. Modest financial incentive would encourage broader use of the heat pump in the replacement, modernization, and retrofit markets.

   Each year there are over a million residential heating systems replaced due to equipment failures. If only a small percentage of these were converted to heat pumps, the combination of energy saving and conservation would be significant. Further, there are many residences currently heated with electric resistance heat where major energy savings would be effected if the system were adapted to the heat pump. In both cases, the cost to the home owner would have a long-term payback and this has been a definite deterrent to his making the change.

7. A financial incentive of from $400 to $600 could provide an inducement for the home owner to convert to the heat pump rather than to simply replace the existing equipment in kind.

8. This program would have a multiplying effect by calling attention to the energy conservation characteristics of the heat pump and demonstrating government endorsement of the heat pump as an energy saving product. This program would get a great deal of attention from heating and air conditioning dealers, home builders, and equipment suppliers.

> The fact that financial incentives were being offered in the modernization segment of the market would encourage other market segments to seriously consider the energy saving heat pump. The "snowball" effect of this program could be very significant.

General Electric Company appreciates the opportunity to offer its views on these important energy conservation proposals.

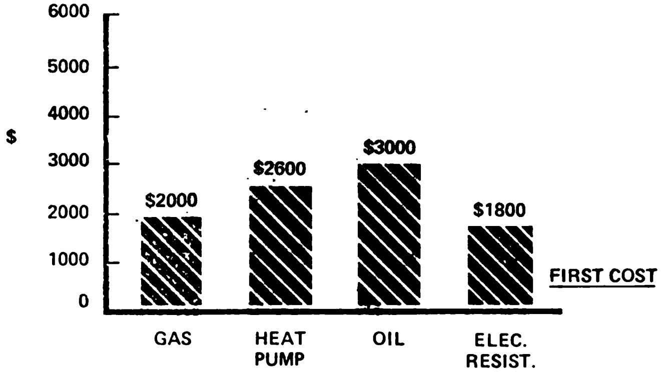
J H Gauss

J. H. Gauss
Vice President and General Manager
Air Conditioning Division

JHG:dw
Att.
5/28/76

REPLACEMENT EQUIPMENT COST OF ALTERNATE HEATING AND COOLING SYSTEMS

(Installed in a typical home)

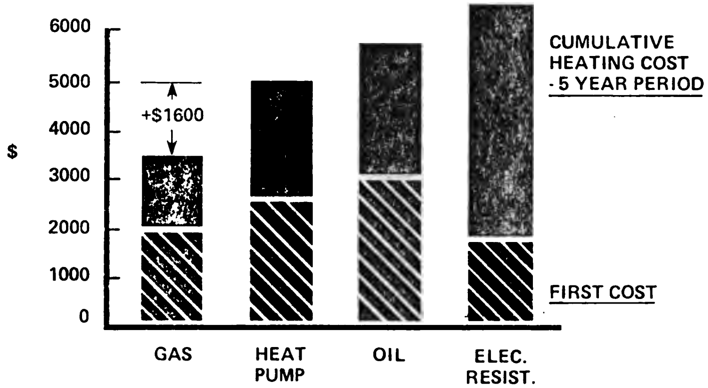


ABOVE COSTS INCLUDE HEATING & CENTRAL COOLING EQUIPMENT INSTALLED. COSTS DO NOT INCLUDE DUCTING, INSULATION, ETC.

CHART 1

TOTAL COST OF ALTERNATE HEATING AND COOLING SYSTEMS

(Includes final cost, chart # 1, plus heating energy costs only)



TO FIRST COST AS SHOWN ON CHART # 1 WE HAVE ADDED 5 YEAR CUMULATIVE HEATING ENERGY COSTS USING FUEL RATES SHOWN ON CHART # 3.

CHART 2

FUEL COST ASSUMPTIONS

	1974 PRICE	ESCALATION IN CONSTANT $
GAS	$ 1.50 KCF	+ 5%/YR.
ELECTRIC	3¢/KWH	+2.5/YR.
OIL	38¢/GAL.	+ 4%/YR. (NO INCREASE 1978-1980)

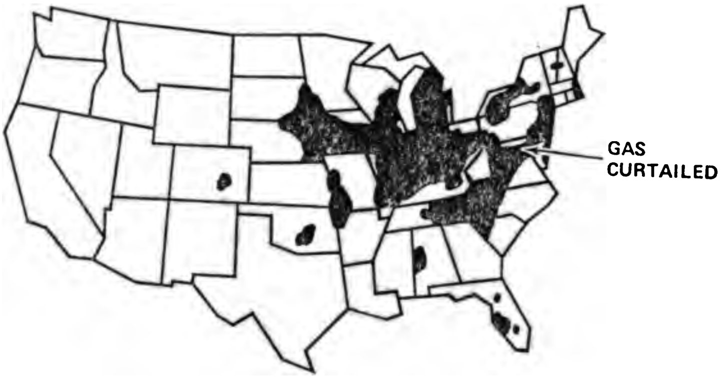
SOURCE: ARTHUR D. LITTLE CO. STATISTICS

HEAT PUMP CONVERSION OPPORTUNITIES

	GAS		OIL		ELECTRIC RESISTANCE	
	DUCTED	NON DUCTED	DUCTED	NON DUCTED	DUCTED	NON DUCTED
AIR CONDITIONED	YES		YES		YES	YES
NOT AIR CONDITIONED					YES	YES

CHART 3

1975 NATURAL GAS CURTAILMENT FOR NEW RESIDENTIAL CONSTRUCTION



GAS IS CURTAILED FOR NEW CONSTRUCTION IN SHADED AREAS.
CURTAILMENT IS SPREADING.

CHART 4

ESTIMATED FINANCIAL INCENTIVE

COST TO GOVERNMENT

	1977	1978	1979	1980
ESTIMATED NUMBER OF UNITS INSTALLED IN EACH YEAR (units in thousands)	4	8	12	15
TAX COST EACH YEAR @ $400/UNIT (dollars in millions)	1.6	3.2	4.8	6.0

CHART 5

USL
UNITED STATES LEAGUE of SAVINGS ASSOCIATIONS WASHINGTON OFFICE
1709 NEW YORK AVENUE, N.W. / WASHINGTON, D C 20006 / TEL (202) 785-9150

PHIL GASTEYER
Staff Vice President and Administrative Officer

May 18, 1976

The Honorable William Proxmire
Chairman
Committee on Banking, Housing and
Urban Affairs
Room 5300 DSOB
Washington, D. C. 20510

Dear Mr. Chairman:

The U. S. League of Savings Associations, on behalf of its 4,600 member savings associations, would like to take this opportunity to present its views on S. 2932, and its successor S. 3424, entitled "The Energy Conservation Act of 1976." We would ask that this statement be included in the record of the Committee's hearings for May 19, 1976.

The U. S. League is particularly interested in those portions of the Energy Conservation Act which provide financial incentives for energy conservation in residences. Savings and loan associations have an important stake in the preservation of our existing housing stock. Our institutions loaned about $55 billion last year, and we estimate that these funds financed the purchase of one million used or existing single family homes, and about 1/4 million apartment units. At the end of 1975, savings and loan associations were providing 88% of the residential (both new and used) home mortgage credit extended by all classes of depository institutions.

There are some obvious benefits to our institutions from a national program to promote energy conservation. With energy costs stabilized: our present borrowers will be better able to meet their loan obligations; the value of our security property will be enhanced; more families will have the potential of attaining homeownership; and, our savers will have more disposable income to invest in their accounts. Thus, we applaud the initiative of your Committee, Mr. Chairman, and the Committees on Commerce and Interior for exploring ways to reduce or better utilize energy consumption. We have appreciated the opportunity of working with the staff of these various panels in an effort to improve the pending legislation.

Before addressing the provisions of the revised Energy Conservation Act, we would like to observe that credit incentives are never particularly effective unless consumers are convinced of real savings for the family budget and the merit of new products. The availability of subsidized and guaranteed loans will not of themselves induce homeowners or corporations to "retrofit" their structures with energy-conserving devices. We are concerned, too, that any new Federally-sponsored program of loan subsidies and guarantees could become a target for disreputable businessmen and shoddy merchandise. In our view, the best protection against fast-buck home improvement firms and inflated costs for insulation and other conservation materials is to encourage the participation of supervised financial institutions -- such as savings and loan associations -- with their sound underwriting procedures and their frequent Federal and state examinations.

We would imagine that much of the financing involved with the proposed residential conservation program involves relatively small loan amounts -- $200, $300, or perhaps $1,000 -- for insulation, heat pumps, duct work, etc. Such loans are difficult and expensive for financial institutions to service. We should also recognize that the dollar savings to the consumer through the use of subsidized loans is modest when applied to such small principal amounts. It is open to question whether the "bargain" offered by the Federal aid is such as to make the energy conservation purchase "irresistible".

With these thoughts in mind, we would like to comment specifically about Section 8 of S. 3424 labeled: "Energy Conservation Assistance for Homeowners." That section establishes a new category of FHA-insured home improvement loans where the Federal Government is authorized to pay 20% of the principal amount of loans for energy conservation (or reduce interest costs by a comparable amount) to a maximum subsidy of $400. A larger subsidy is permitted for renewable-resource energy measures, and provision is made for certain high cost areas that may require broader financial incentives.

We would like to make the following observations about Section 8:

1. Conventional, as well as FHA-insured, home improvement loans should be eligible for Section 8 assistance. At present, there are roughly three times as many conventional home improvement loans originated by supervised financial institutions -- savings and loans, commercial banks, mutual savings banks, and credit unions -- as there are FHA Title I home improvement loans. For a variety of reasons, depository institutions often prefer to make home improvement loans outside of the FHA insurance program -- thus avoiding bureaucratic delays, and utilizing greater flexibility in terms. And, the supervision and regulation of these institutions suggests proper underwriting and oversight as is found with the FHA Title I loans. If the financial incentives portion of the program is to succeed it must be structured to encourage the broadest possible participation by supervised lenders. Expanding the authorization in Section 8 to include conventional home improvement loans would achieve that objective.

2. We would also question why the draftsmen of S. 3424 did not choose to include existing Farmers Home Administration and Veterans Administration home improvement and rehabilitation loan programs as eligible vehicles for the energy conservation loans.

3. It would be our hope that the term, "energy conservation measure" would be broadly interpreted, at least in the context of residential improvements. Experts in this area indicate that often such traditional architectural components as solariums and vestibules achieve significant energy savings for the homeowners.

4. As presently written, it is unclear whether the energy conservation provisions of Section 8 are limited to "homeowners". Energy waste in income properties is certainly just as much a national problem as in owner-occupied dwellings. A realistic national conservation program should be broad enough to include Federal assistance for conservation measures in rental units as well as owner-occupied homes.

5. While we find the loan provisions of Section 8 a hopeful beginning, we would also note that it is important to encourage invest-

ments by families capable of paying for their improvements without the need of credit. In testimony before the Finance and Commerce Committees we have declared our support for the tax credit approach of H.R. 6860 -- which, if enacted, may stimulate energy saving improvements by families wishing to pay cash. Another pending bill, H.R. 8650, addresses the problem presented by low-income families which may not be credit-worthy, or have sufficient tax liability to find a tax credit appealing. Congress should seek to "integrate" these different approaches; certainly it should prevent duplication of benefits.

6. While we recognize the importance of developing an incentives' program in an orderly fashion, we question whether the dollar limitations amounting to an aggregate $700 million (over four years) will be adequate considering the magnitude of the problem.

There are other important sections of the bill with incentives for small businesses and industrial plants. While these borrowers are not typically served by S&L associations, we would agree with the draftsmen that any national program for energy conservation must also address energy waste in non-residential structures.

Beyond the provisions of S. 3424 as now written there are two other broad-brush suggestions that we feel might make a financial incentive program for energy conservation more workable.

1. The first, and one which our organization is actively pursuing already, is to redesign the mortgage instrument itself to open up new financing possibilities for home borrowers. (While we would welcome recognition of this effort by the Congress, this would not need statutory stimulus, I presume.) A more flexible mortgage instrument might, for example, permit a homeowner to "unlock" some of his built-up equity to provide the foundation for a new loan for an energy-saving improvement to his home. This is particularly important in the case of retired persons who have religiously met their mortgage obligations for 20 or 25 years. Because of their fixed and limited incomes, they are unable to unlock the "life savings" that their home represents because

of the strictures of their original mortgage instrument. If they are to afford improvements which will cut their rising utility bills, their options today are to seek a high-rate installment loan, or to attempt to refinance their property; in either event an expensive proposition. A line-of-credit opportunity in the provisions of the original contract -- much like the loan privilege built into life insurance contracts -- might help consumers make energy-saving improvements in future years, and at greatly reduced financing costs and improved terms.

2. Another suggestion addresses the problem of size and the difficulty of servicing the small loans for energy saving devices. The Congress may wish to consider authorization for a secondary market facility to aggregate large numbers of small subsidized or guaranteed loans which are made for retrofitting purposes. One possibility would be to utilize the existing facilities of the Federal Home Loan Mortgage Corporation and the Federal National Mortgage Association. Another would be to create an agency similar to the Student Loan Marketing Association established under P.L. 89-329. "Sallie Mae", as you know, is a Government-sponsored, private, for-profit corporation which "warehouses" guaranteed student loans. Given the proven performance of homeowners in meeting their mortgage payments, and their exhibited credit-worthiness, we would anticipate that the small, energy-related loans originated by financial institutions and sold to a secondary market facility would be very attractive assets. These investments could be enhanced even further by Federal guarantees similar to those provided in Section 10 of S. 3424. At the same time, using a market mechanism such as the participation or guaranteed certificate, these small energy-related loans could be aggregated into larger investment units, which would then, in turn, provide the basis for bond-type securities. Such large denomination securities might prove attractive to pension funds or similar institutional investors -- thus, indirectly, tapping additional sources of capital to help meet the residential energy conservation needs of our nation.

Before concluding, Mr. Chairman, we would like to comment that the existing statute governing investments by Federal savings and loan associations is unduly restrictive in the home improvement loan area in terms of dollar amount, geographical location and percentage of assets. These rigid limitations could act to discourage participation by Federal associations in any new national effort of energy conservation loans. (Roughly two-fifths of the nation's S&Ls, with 60% of the assets, are Federally-chartered.) As the Committee knows, Title III of S. 1267, the Financial Institutions Act '75, would remedy this situation. At this writing, however, it is uncertain whether the House will proceed with comprehensive language modernizing the investment powers of Federal savings and loan associations. In the event that comprhensive financial reform measures "stall" in 1976, we would recommend that the Committee and the Congress seriously consider as a separate matter the modernization of the traditional investment areas for Federal associations, which would include, of course, home improvement lending along the lines of Title III of S. 1267.

Energy conservation is unquestionably one of our top national priorities in 1976. An addendum attached to this document gives a brief description of energy conservation activities undertaken to date by our organization. The U. S. League stands ready to assist the Committee and the Congress in developing an effective program to achieve energy saving improvements in residences.

Thank you for this opportunity to present our views.

Sincerely,

Phil Gasteyer

Phil Gasteyer
Staff Vice President-Associate Director

PG/p-L

ADDENDUM

Brief Description of U. S. League Involvement in Energy Conservation

The U. S. League has not been idle during this period of national concern over energy. At the most recent meeting of the U. S. League's Committee on Land Use and Environment, the Committee approved a resolution which endorses:

a) the adoption by member institutions of underwriting, appraising and property listing forms which adequately describe the energy saving improvements and the likely heating/cooling costs of the subject property;

b) the adoption of recommended procedures for reflecting energy costs and special energy-related improvements in the underwriting and appraisal processes; and

c) cooperation with other interested groups related to the housing industry in carrying out the above objectives.

The League's Board of Directors subsequently ratified these positions. I understand from Mr. Harold Olin, the U. S. League's Director of Architectural and Construction Research, that work is well underway on each of these resolutions, with the League participating in discussions involving Realtor, professional appraisal groups, and representatives of the Federal Energy Administration and Energy Research and Development Administration.

Particular mention should be made of the League's Construction Lending Guide, which is used by our 4,500 members and has been very much in demand from builders, contractors, engineers, and other officials. The Guide contains extensive information on energy conservation materials and designs, along with land planning, construction, and other information. The five-volume Guide has been condensed into a hard cover book which is in use at some 175 colleges and universities. The League also has available to members and other interested groups a slide presentation entitled "Energy Saving Homes -- for Profit and Comfort", and periodically includes articles on energy conservation in its monthly publications with a readership extending to all levels of the 100,000 or so employees of the savings and loan business. Energy conservation is also stressed in course materials prepared by our affiliated Institute for Financial Education, which conducts in-service educational programs for savings and loan personnel, and in pamphlets made available through our affiliated Advertising Division.

There have also been some innovative efforts on the part of our member associations to contribute to the energy conservation effort. One example is a project undertaken by a service corporation subsidiary of Unifirst Federal Savings and Loan Association in Jackson, Mississippi. The subsidiary, Workman and Mann, Inc. has constructed a model home utilizing a solar and two-way air flow system that has cut utility costs by at least 50%.

In another area, Mr. Olin and other staff members have engaged in intensive study of the appraisal process, and the standardized documents now in use. Of particular interest is the trend in professional appraisal circles for assessing life-cycle costs for multi-family construction. Since many of the new developments in energy conservation involve high initial costs to the builder, the life-cycle costing could make a substantial change in the valuation credit for their purchase. We are also interested in ascertaining thermal standards for single-family houses; this data is already available from insulation companies. Buyers and sellers can obtain this information, which can then be entered on loan application forms to assist lenders in underwriting judgments. Energy-relevant information could also be incorporated in the standard forms developed by the Federal Home Loan Mortgage Corporation and in widespread use throughout the country, and that possibility is under active review. All of these developments are raising lender consciousness about energy conservation -- making it easier for buyers to qualify for loans, encouraging more energy-efficient construction, and providing an incentive to builders to utilize new energy-saving techniques.

○

DEPOSIT
AUG 1 7 1976
SHIPPED

Y 4.B 22/3:EN 2/3 C.1
Energy conservation ac
Stanford University Libraries
3 6105 045 179 178

DATE DUE

STANFORD UNIVERSITY LIBRARIES
STANFORD, CALIFORNIA 94305-6004

GAYLORD